Reviewer's report

**Title:** Pattern of fractures across pediatric ages: analysis of individual and lifestyle factors.

**Version:** 1 Date: 4 August 2010

**Reviewer:** Frank Hildebrand

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The article by Valerio et al. describes the individual/lifestyle determinants associated with fractures in preschoolers, children and adolescents in an Italian Children Hospital. Overall, 382 patients were enrolled in the study. The main findings are: Fractures are generally more common in boys, there is a gender related difference concerning injury prevalence, characteristics and circumstances.

This is a very interesting study and presents nice data on injury characteristics in children. However, there are some major and minor points which need to be addressed sufficiently.

- **Major Compulsory Revisions**

  **Abstract:** Overall the abstract is poorly written and needs to be completely reconstructed.

  1. Fractures are not extremely common in children. Or: How is “frequently” defined?
  2. What do you mean with: “a higher prevalence of boys was found”?
  3. Low energy dynamics: low energy trauma?
  4. No demographics are provided. Continuous data is presented without SEM.

  **Background section:** The authors need to reconstruct this section and describe the problem. What do you want to explore exactly? Could you imagine to give or to evaluate some advice for parents out of your data?

  5. First sentence is repeated out of the abstract.

  6. You can not compare the socioeconomic impact of fractures in children and those of fractures in the elderly due to ICU stay and co-morbidities of the elderly.

**Methods:**

  7. Fractures mostly occur in children without significant co-morbidities, please clarify.

  What do you mean with slight or moderate trauma? Please provide exclusion
criteria.
8. Did your inclusion criteria result to excluded patients?

Results:
9. The authors discuss the incidence and regions of injuries in the study population. These data needs to be integrated in the results section e.g. as a table with corresponding p-values. Additionally, this has to be discussed in the discussion section.
10. There are no statements about possible preventive procedures out of the results of this study.
11. Please provide exact inclusion/exclusion criteria for the methods section. Additionally, please explain group building in regards to age and integrate this in your methods section (now in results).
12. The authors state that there is no association of bmd-sds and parents´ educational level. However, are there significant correlations between the education level of the parents and incidence of fractures?

- Minor Essential Revisions
1. Typing error within the title.
2. English spelling and grammar errors need to be addressed.

Methods section: This part is poorly structured and needs to be reconstructed and revised before resubmission.
1. Please provide level of trauma care.
2. Pre-study power calculation belongs to the statistics part.
3. Age: results section.
4. The authors were able to recruit nearly 400 patients with fractures in a 5 month period. This seems to be a very short time to include that many children with fractures. Please clarify.
5. Fractures were determined at time of admission and not at time of injury.
6. Please indicate the height in falls out of beds e.g. <X meter were determined as low energy trauma.
7. Please provide a table for Landin´s description
8. Written informed consent: This should be described at the beginning of methods.
9. Sedentary behaviours: please specify what you mean
10. p-values: repetetion at the end of the paragraph

Results:
1. Age: This is not SD, this is range in case of median calculation.
2. Please unify your tables
3. Please specify significant results in all of your figures
4. Please extend the paragraph (data) about the injury location and specify (see majorrev. point 10). It is interesting to evaluate the site of injury also in this paper. this data might lead to an increased awareness in the attending trauma surgeon. Please provide data in a table to give the additional information. What did you do in multiple injuries/fractures?
5. “The percentage of recurrent fractures increased from preschoolers to adolescents”. This has to be critically discussed as age is increasing in these patients.

Discussion: Needs to be restructured according to the most relevant results.
1. There are no limitations described (e.g. no trauma center)
2. At the beginning, please provide a short summary of your results to improve the structure. Then discuss your main findings accordingly.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'