Reviewer's report

**Title**: Use of the emergency department for less-urgent care among type 2 diabetics under a disease management program

**Version**: 1  **Date**: 2 March 2009

**Reviewer**: Anke-Peggy Holtorf

**Reviewer's report**:

**Major Compulsory Revisions**

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

This study had the objective of analysing whether adherence to disease management programs had a positive impact of less-urgent emergency department visits by Type 2 Diabetes Patients. I see several methodological gaps or flaws in the script which need to be addressed before this manuscript can be published. Some specific points which I noticed are listed below. I think however, that if the methods and results were presented more transparently, and if the discussion would focus more on the actual results instead of drawing conclusions, which were not supported by the results, that the publication could be valuable information for those working in this field.

1. This manuscript refers on several occasions to cost and cost savings. Since the underlying research did not look into any cost items it does not seem to be appropriate to draw conclusions on cost.

2. Background, last paragraph: Results from this investigation can provide important information to identify the specific populations who are more likely to use less-urgent ED services.

   **Comment**: This does not seem to be addressed by the research presented here.

3. Methods, first paragraph: It is mentioned that patients were enrolled in several disease management programs.

   **Comment**: A description of the matter and extend of these programs is missing. Without that it is hard to understand how they would impact the outcome of less urgent ED visits.

4. Methods, paragraph 2: How can there be patient who only visited the clinic, if the patients were selected because all of them had at least 2 ED visits (see paragraph 1)?

5. Methods, paragraph 4: Patients sought care in the ED of one of eight facilities operated by the HCSD.

   **Comment**: Isn’t that by design, because that was the database you used.
6. Results, paragraph 1: ... who had been more compliant with their DM schedules in the past 12 months.

Comment: What were the DM programs? What were the interventions? What were the goals?
Comment If this is an analysis of data between 1999 and 2006, why is only the adherence in the last 12 months used to categorize patient groups

7. Discussion, paragraph 1: Another benefit appears to arise from a successful DM program—namely patients who adhere to their DM program and effectively manage their A1s do not use the ED inappropriately for less-urgent care.

Comment: This sentence seems to imply, that patients adhering to their DM program have a lower A1c and therefore use the ED only for urgent cases. This conclusion cannot be drawn from this study.

8. Discussion, paragraph 2: patients who maintain their A1c at closer to normal levels reduce their likelihood of less-urgent ED visits about 1.22 times.

Comment: If I am reading the results correctly, it is only confirmed that near normal HbA1c correlates to a reduced risk of ED visits, but not that the reduction of HbA1c correlates to lower risk of ED visits.

9. Discussion paragraph 2: Further, older patients or patients who remain in the program longer, have a decreased likelihood of less-urgent ED visits even

Comment: How has it be determined that they remained in the program for longer?? As far as I saw in methods, only the past year visits were evaluated for adherence

10. Discussion, paragraph 2: Less-urgent ED visits tended to occur in the early stages of DM and decreased with time.

Comment: Is that true for everybody. Were they potentially replaced by more urgent visits with progressing disease ?

11. Discussion, paragraph 3: African-Americans tended to use more ED services in less-urgent situations than other patients after controlling for insurance coverage, adherence and management of A1c levels.

Comment: Here it is mentioned that this was controlled for other variables. This should be described more explicitly in the results. Would this mean, that all others being equal, Africans with T2DM used more less-urgent ED services – independent from DM, insurance status, age etc ?

12. Discussion, paragraph 6: Further study is required to understand the lower ED use among the uninsured. Nonetheless it seems likely that the possibility of less-urgent ED visit can be reduced by improving access to primary care by providing a call center to arrange appointments and to help patients better manage their conditions.

Comment: I do not understand this conclusion from the data presented. I thought that all patients had access but some used the DM programs more compliantly
than others. I did not see any comparison of a patient group with access to a patient group not having access. Unless, I missed this part ...

13. Unclear: Why are only weekday visits relevant to this study? Why would an ED visit during the weekend for less urgent matters be more acceptable than during the week?

14. Unclear: Why are the ‘urgent ED visits’ not relevant to this study. I think a lot of important information is lost by excluding them. The less urgent visits should be evaluated in relation to the urgent visits

15. Conclusions:
- In particular patients need to remain in their diabetes programs over several years.
- The adherence to guidelines is still the best way to reduce the likelihood of less-urgent ED visits, and we suggest providing reminders for clinic visits, creating continuous care by calling patients regularly or using case managers to educate and reduce the likelihood of less-urgent ED visits.
- By reducing the likelihood of ED visits, unnecessary costs can be avoided and patients’ quality of care improved.

Comment: Neither one of these points has been studied here. This study does not seem to be powerful enough to draw these conclusions.

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. Abbreviations:
‘CCI’ is used in the abstract without explanation.
‘A1c’ is not explained the first time used. Shouldn’t it be HbA1c?

2. Background, first paragraph: However, studies have concluded that Type 2 diabetes is preventable, and patients with the disease can have a higher quality of life without suffering the chronic situation of high health care expenditures if they follow the doctor’s advice on diet, medicines, and lifestyle behaviours [2-4].

Comment: Who suffers here, the patient or the payer?

3. Methods, paragraph 3: We only kept only data from 6,412 patients who were older over 45 years.

Comment: Older than ?

4. Methods, paragraph 3: Thus 119,624 outpatient clinic visits and 16,249 less-urgent ED

Comment: where do these numbers come from? This has not been explained before.
5. Methods, paragraph 4: CCI was accumulated from 1, 2, 3 and 6 that the higher final score meant the more severe in comorbidity.
Comment: sentence unclear

6. Results, paragraph 2: Being Caucasian or being of another race reduced the likelihood of a less urgent ED visit as compared with being African-Americans.
Comment a: How was that connected to adherence to DM program?
Comment b: Perhaps more neutral? E.g. correlated to a lower likelihood ...

7. Discussion, paragraph 2: patients who maintain their A1c at closer to normal levels reduce their likelihood of less-urgent ED visits about 1.22 times.
Comment: better formulation? ... who maintain their A1c closer to normal ...

8. Discussion, paragraph 2: older patients or patients who remain in the program longer,

9. Comment: Use same timing throughout the paper: past tense or presence

10. Results, paragraph 3: How did insurance coverage correlate to adherence to DM programs?

11. Discussion, paragraph 3: ... ED services in less-urgent ...
Comment: less-urgent

12. Discussion, paragraph 5: in this study, the uninsured were less likely to seek care for less-urgent ED conditions.
Comment: Perhaps they had more urgent visits, though?

13. Discussion, paragraph 5: ... this variable not significant.
Comment: ... was not significant

14. Discussion, paragraph 6: ... the ability use after-hour
Comment: ... to use ...

15. Discussion, paragraph 7: went to LSU-HCSD ...
Comment: Expression / acronym is not explained

16. Tables (especially, 2 and 3): better legend and description of tables needed.

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, paragraph 1: Expectations shouldn’t be part of results.

2. Discussion, paragraph 4: One reason is that patient visits associated with severe health conditions were more likely to be classified as urgent and thus
dropped from the study
Comment: This seems to be a clear limitation of the study and should be mentioned in that context.

3. Conclusion: using a random control trial ...
Comment: randomized controlled trial ?

**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 have no competing interests in relation to this paper.