Reviewer’s report

Title: Assessment of ePrescription quality: an observational study at three mail-order pharmacies

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Reviewer: Bryony Dean Franklin

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Assessment of ePrescription quality: an observational study at three mail-order pharmacies

This is an interesting study and demonstrations that electronic prescriptions do not necessarily increase prescribing quality.

Major Compulsory Revisions

There are none.

Minor Essential Revisions

Abstract

1. In the background section (and in the main body of the paper), I did not feel that the term “ratios” was the correct one to use. “Proportions” or “percentages” may be easier to interpret for the reader. The results present the error rates in terms of percentages (rather than ratios) and so this would be the correct term to use.

2. In the methods section, it is stated that data on ePrescriptions were compared with data on all drug prescriptions. However the results section presents the comparison against paper prescriptions rather than all prescriptions. The two sections need to match each other.

3. Instead of “rate ratio” I wonder if the authors mean “relative risk”? This comment also applies to the main body of the paper.

4. In the results section, the numbers do not add up. It is stated that 312 prescriptions necessitated contact with the prescriber, and then later it states that 89.5% suggested interventions were accepted by the prescriber (which would be 279), then it stated that 192 of 247 were accepted without further modification... I can’t work out where the other 32 have gone? This also applies to the main body of the paper.

Background

1. I am not clear what is meant by “web” in the phrase “.. transitional stage between paper and web...”. Does this mean electronic prescriptions in general, or is it a specific kind of electronic prescription that is downloaded from the internet? Please clarify.
2. It is stated that ETP was first deployed in 1983 – was this in Sweden, or the first worldwide? The text should state which country this relates to.

3. The legend for figure 1 is incorrect – instead of inter-country range it should be intra-country range (or just “range”) if all the measurements are from one country.

4. The aim is “to estimate the quality...”. I don’t feel that this is the correct term. “To assess the quality” would be more correct.

Methods

1. It is not clear what is meant by “prospective drug utilization review” in the setting. Is this a medication use review, is this audit, or is it electronic interaction / dose / contraindication checking? Please clarify what is intended.

2. It would be helpful to explain what is meant by prescriptions for non-pharmaceuticals (I assume this means prescriptions for compression stockings, dressings etc, but it would be helpful to clarify this for non-pharmacist readers)

3. In the section on work organisation, it is stated that some prescription problems may have been resolved by the pharmacists themselves by consulting the patient etc. Did this take place before or after consulting with the prescriber? And were these queries included in the study?

4. In the data collection section, what is meant by the “protocol” that the prescriptions were attached to?

5. In the section on statistics, need to state explicitly what the two groups were between which the comparisons were made.

6. Did the prescribers know that the study was taking place? This needs to be stated.

7. Was ethics approval required / obtained? This needs to be stated explicitly.

Results

1. In the second line, “contained” is not the correct word – “comprised” may be better.

2. Need to state how many refills were electronic and how many were paper. Why was the comparison between electronic and paper prescriptions only made for new prescriptions, and not for refills?

3. It is stated that the RR for “Dosage and directions for use” compared to other causes of intervention was 7.6. However the data presented in table 2 suggest that this RR relates to the comparison between ePrescriptions and non-ePrescriptions (rather than between different types of intervention). This needs to be made clear.

4. It is stated that the mean duration of contact was lower for ePrescriptions – was this difference statistically significant?

5. Why were the 9 outliers excluded from this analysis? this needs to be justified.

6. Table 1- are the figures for all prescriptions cited before or after the adjustment
for 15/20?

7. Table 2 – caption – instead of “divided by” I think this should read “presented according to”

Discussion

1. It is stated that new ePrescriptions were associated with more clarification contacts than non-electronic prescriptions. I believe this should be NEW non-electronic prescriptions, based on the analysis presented in the results section?

2. Need to comment on WHY there is a higher rate of clarification contacts needed with ePrescriptions than for non-ePrescriptions, in particular those involving “dose and directions for use”.

3. Last paragraph of page 13 – “prescribe” should be “prescrber”

Conclusion

1. The conclusion implies that there was an increase in clarifications needed for all ePrescriptions, whereas the results section only presents data for NEW ePrescriptions. The two sections need to match.

Discretionary Revisions

Abstract

1. In the results section it would be helpful to present error rates for both ePrescriptions and paper prescriptions as this is the aim of the study.

Background

1. It may be helpful to refer to computer-generated paper prescriptions as these have many of the advantages of ePrescriptions in terms of less ease of falsification and greater clarity of interpretation.

2. The statement “there are a number of advantages to ePrescriptions; for one thing, they eliminate the need for paper prescriptions” is a tautology. It would be more helpful to give specific advantages.

Results

1. The data presented on clarification rates for new versus refill prescriptions is not listed as an objective of the study, and these data therefore seem rather incongruous.

2. It would be helpful to give examples of the types of problem that accounted for the increase in clarifications due to “dosage and directions for use” for the electronic prescriptions. I was left wondering what types of problem these were!

3. It would be helpful to explain what is meant by interventions that were accepted “after a modification”

4. Was there a difference in the percentage of prescriptions requiring clarification
contacts between the three pharmacies?
5. It would be helpful to give examples of contacts that fell into the “other”
category, as this forms a significant proportion of the overall clarification contacts.

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests