Reviewer's report

Title: Insulin Use and Persistence in Patients with Type 2 Diabetes Adding Mealtime Insulin to a Basal Regimen: A Retrospective Database Analysis

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Reviewer: Howard Moffet

Reviewer's report:

This paper examined Insulin Use and Persistence in Patients with Type 2 Diabetes Adding Mealtime Insulin to a Basal Regimen. The paper is well-written, but exposures of interest (claims) and outcomes (persistence) could be clearer in their definitions.

Minor Essential Revisions

1. It would be most helpful to differentiate clearly the following: prescriptions (written or ordered by provider) vs dispensings (fills and refills). As written, it suggests that persistence depends on the prescriptions being written rather the dispensings. ("Patients were required to have a second mealtime insulin prescription...") You measured claims as a measure of utilization/dispensings. The use of "claims" or "dispensings", not "prescriptions", as the outcome of interest should be consistent and clear throughout the manuscript.

2. The description of measure 2 in the abstract is "1 prescription (dispensing?) per quarter" but this does not seem to be in the text and the definition(s) in the text does not easily distill into 1/quarter. The definition of measure 1 in the text might be aided by an example; I had a hard time grasping the definition as written. ["For example, if a patient had a refill at (index date + 2 months) but did not have another fill within the next 90 days (i.e. index + 5 months), that patient would be nonpersistent."] The definition of measure 2 could be clearer; does the count (e.g. At least 2 mealtime insulin claims in first 4 months) include the index fill? Should the bullets for Persistent at 6 months be joined by "and"? If so, perhaps simply state as a sentence (e.g., Do you mean, "At least 3 mealtime insulin claims (including index or not?) in first 7 months INCLUDING At least one mealtime insulin claim in months 1-3 AND At least one mealtime insulin claim in months 4-6")? Also, start a new paragraph on page 6 at the beginning of definition of Measure 2.

3. In Results, suggest simply identifying those with type 2 dm those with no evidence of type 1 or GDM and then identify those with required prescriptions of basal insulin. It is distracting to read of those with type 2 dm who have evidence of type 1 or gdm.

Discretionary Revisions

4. It was surprising that the two measures of adherence have such different
results, since they appear to be so similar at first look. Perhaps you can say more to explain the difference or why it might matter.

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

**Quality of written English**: Acceptable

**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.