Reviewer’s report

Title: Does the implementation of a care pathway for patients with hip or knee osteoarthritis lead to fewer diagnostic imaging and referrals by general practitioners? A pre-post-implementation study of claims data.

Version: 0 Date: 11 Apr 2019

Reviewer: Gillian Hawker

Reviewer's report:

This is a well-written and important manuscript reporting on the impact of a GP stepped care pathway on ordering of diagnostic tests and referrals to orthopaedic surgery for patients with hip and knee OA using administrative claims data. I have the following questions and comments:

1. Abstract - results: I found this bit difficult to understand as written and suggest reworking to simply the message. Perhaps the text could be replaced with a simplification of the tables 1 and 2?

2. Background

a) line 1 - the OA community is working hard to get rid of the perception that OA is a "degenerative disease" as it leaves many patients thinking it is simple aging and nothing can be done - I would respectfully ask that the sentence simply be revised to "Osteoarthritis is a common joint disorder..."

b) line 50 - should the word 'adequate' be 'appropriate'?

3. Methods:

a) While not the focus of the manuscript, it would be useful to know how the implementation of the stepped care pathway was undertaken - how did you come up with the education materials and computer reminders for example? Were patients engaged in the implementation?

b) Please describe how the control region was selected.

c) page 8 first paragraph - why was the pre implementation period 3 years while the post implementation period was only 2 years?

d) I found the description and rationale for cost savings estimates confusing - why did you not use the actual costs based on the numbers of claims for diagnostics, ortho consultations, etc? Could you have incorporated the numbers of patients referred to ortho surgery who went on to undergo hip or knee arthroplasty? if not why not?
e) final paragraph on page 8 - I am confused by the analytic description - it sounds like your dependent variable was the total number of claims (a count) whereas it is described as a binary outcome - please clarify.

4. Results:

a) As per above, it would be very interesting to know what proportion of surgeon consultations resulted in surgery.

b) as per above, as presented, i am not sure that the cost savings analysis is sufficient added value to the paper - one can extrapolate savings from Tables 1 and 2

5. Discussion:

a) Do you have any data that would point to what specific elements of the intervention or implementation strategy were most responsible for changed physician care behaviours?

b) Page 15 line 13 - should read "...the expert group..."

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

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