## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (http://bmjopen.bmj.com/site/about/resources/checklist.pdf) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### **ARTICLE DETAILS**

TITLE (PROVISIONAL)	Impact of the introduction of falls risk assessment toolkit on falls
	prevention and psychotropic medicines utilisation in Walsall: an
	interrupted time series analysis
AUTHORS	Aladul, Mohammed; Patel, Bharat; Chapman, Stephen

## **VERSION 1 – REVIEW**

REVIEWER	Alison While
	Kings College London
REVIEW RETURNED	08-Jul-2020

This is a useful small study which utilises patient records and prescribing/dispensing data associated with one medical centre. Please clarify that this is not a research project but a service evaluation and therefore research ethics committee approval was not required.  Minor points: Please check punctuation and use of possessive and correct. All ages should have 'years' after the numeral. The choice of language can be difficult. Two terms are used regarding the study focus: 'elderly patients' later referred to as 'seniors'. The term elderly has been associated with ageism. Might the term older patients be acceptable? Please correct 'that' to 'who' when referring to people (they are not objects) Header: 'Change in expenditure on psychotropic medication prescribed/utilised at Rushall' – please add 'Medical Centre' Good to read how proactive screening may reduce the incidence of falls and falls-injuries.		
Tano aria iano irijarioo:	GENERAL COMMENTS	prescribing/dispensing data associated with one medical centre.  Please clarify that this is not a research project but a service evaluation and therefore research ethics committee approval was not required.  Minor points:  Please check punctuation and use of possessive and correct.  All ages should have 'years' after the numeral.  The choice of language can be difficult. Two terms are used regarding the study focus: 'elderly patients' later referred to as 'seniors'. The term elderly has been associated with ageism. Might the term older patients be acceptable?  Please correct 'that' to 'who' when referring to people (they are not objects)  Header: 'Change in expenditure on psychotropic medication prescribed/utilised at Rushall' – please add 'Medical Centre'  Good to read how proactive screening may reduce the incidence of

REVIEWER	Nathalie van der Velde
	University of Amsterdam, Department of Internal Medicine
REVIEW RETURNED	19-Aug-2020

Summary:  Description of statistical methods is missing
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Introduction: Page 3, row 45: the authors comment that the majority of fall risk assessment tools have not been validated and concurrently introduce FRAT, however without providing evidence that indeed FRAT has been assessed with regard to validity and reliability (predictive value etc) Methods: Page 4, row 40: given the aim of the study and the described methods the inclusion criterion 'having a fall risk' or using psychotropic medication appears to be faulty? I would expect that the falls diagnosis would be sufficient? I assume that all fall-related admissions were taken into account and that non-users of psychotropics were not excluded? Moreover, it is unclear from the methods section how the inclusion criterion increased fall risk was assessed? Description of described outcomes is incomplete in the methods section, among others description of how 'admission costs' were determined and analyzed is missing, same for 'psychotropic expenditures'. Furthermore, the outcome referral to falls clinic is not mentioned in methods section, but results are presented in results section. Results: Table 1: trend per psychotropic drug group, is not informative and can be removed. Discussion: Preferably the first paragraph would contain the main outcomes and conclusions, not a general statement on falls prevention and FRAT, please replace or rearrange. Please elaborate on possible confounding effects (and other limitations) of the interrupted time series and include whether any other health care/societal changes may have contributed to the

REVIEWER	J Nolan
	Northern Kentucky University, Mathematics & Statistics
REVIEW RETURNED	07-Sep-2020

observed changes over time.

## **GENERAL COMMENTS**

Please note this is a statistical review only. Also the editor should note that time series is at the fringe of my expertise, so if it were desired to send it to a statistical reviewer who focuses more in that area I would not be at all offended.

After reading through the manuscript, the methodology seems reasonable to me. I do have the following questions/comments (all of which are just related to basic statistics, not the time-series method itself):

- 1. It appears that the response variable was simply the number of falls, as well as cost. I am uncertain as to why these were not instead taken in a ratio relative to, for example, the total number of patients during the same time-frame. It seems to me that there are many reasons (including 28 vs. 31 days) that monthly numbers might not be comparable without doing that.
- 2. (page 4) The statement that "while the cost of non-elective admission decreased non significantly at a rate of £1275 per month (p<0.087, 95% CI = [-2738, 186])." is badly misstated and should be rewritten. If there is not statistical evidence of a decrease, then you should never suggest that a difference is somehow shown by including the sample mean. Rather, you should say something like:

"while there was not evidence of a change in the cost per month (p<0.087, 95% CI = [-2738, 186]". Of course with a larger sample you may well get evidence (this fact deserves comment), but you do not have that evidence here.

- 3. (page 4) Ideally your other statements should incorporate CI rather than sample mean. For example, utilization of quetiapine increased at an estimated rate somewhere between 2.6 and 16.7 DDD per month (not exactly 9.65 which is only the rate for the sample). As you have included the CI, I am willing to overlook this but as you are making inference it would be superior to interpret the CI rather than the sample mean.
- 4. (page 4) The statement about "decreasing non-significantly" at the bottom of the page is also not appropriate (see 2 above, and rewrite it). Also, remove the word "significantly" everywhere in the paper. A decrease that is accompanied by a small p-value is a decrease, and the word "significantly" adds absolutely nothing to it. You might want to consider whether the CI shows the decrease to be "substantial" and if so include that word (e.g. at least £986 for the statement at the top of page 5.) I notice this phrase appears in the abstract too, so that should be fixed as well.

Please note that I would absolutely require the changes in items #2 and #4. #1 is more of a query but seems like a logical suggestion, and #3 is a suggestion toward better language.

REVIEWER	Robert B Penfold
	Kaiser Permanente
REVIEW RETURNED	27-Oct-2020

### **GENERAL COMMENTS**

This is a nicely conducted quasi-experimental study of the impact of a falls prevention program. It's an important topic and the manuscript is generally well written. However, there are three issues that need to be addressed.

The methods section needs more description of the modeling. In particular, there is no description of any autoregressive terms. If an autoregressive model was not used then the analysis must be redone. See papers by Ariel Linden on how to do this using STATA. https://journals.sagepub.com/doi/pdf/10.1177/1536867X1501500208

Second, the authors must include a graph showing the deflection in falls rates.

Third, a discussion of competing interventions is absent. The authors need to assure us that other factors that occurred contemporaneously are not plausible explanations for the decrease in fall rates. ITS analyses control for baseline trends but internal validity is reduced if other programs began at the same time.

## **VERSION 1 – AUTHOR RESPONSE**

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Alison While Institution and Country:

King's College, London

UK

Please state any competing interests or state 'None declared': None declared

Comments to the Author

This is a useful small study which utilises patient records and prescribing/dispensing data associated with one medical centre.

Please clarify that this is not a research project but a service evaluation and therefore research ethics committee approval was not required.

Response to reviewer: this section has been amended accordingly.

Minor points:

Please check punctuation and use of possessive and correct.

All ages should have 'years' after the numeral.

Response to reviewer: This point has been amended

The choice of language can be difficult. Two terms are used regarding the study focus: 'elderly patients' later referred to as 'seniors'. The term elderly has been associated with ageism. Might the term older patients be acceptable?

Response to reviewer: this point has been amended accordingly.

Please correct 'that' to 'who' when referring to people (they are not objects)

Header: 'Change in expenditure on psychotropic medication prescribed/utilised at Rushall' – please add 'Medical Centre'

Response to reviewer: This point has been amended.

Good to read how proactive screening may reduce the incidence of falls and falls-injuries.

Reviewer: 2

Reviewer Name: Nathalie van der Velde

Institution and Country: Amsterdam UMC, AMC, The Netherlands

Please state any competing interests or state 'None declared': none declared

### Comments to the Author

The paper addresses an important clinical problem using interrupted time series to assess effectiveness of implementation of a fall-risk assessment tool (FRAT). As partly mentioned in the introduction, validation and implementation studies are scarce for falls prevention tools and the authors are to be commended to assess effectiveness of FRAT in clinical practice. Even though they were not able to perform a formal validation study, they did convincingly show that fall-related admission as well as fall-related health care costs reduced substantially after implementation of FRAT. Analyses and conclusions appear to be adequate, however some essential information is missing in the methods section. For details see below.

Summary:

Description of statistical methods is missing

Response to reviewer: This section has been amended accordingly.

#### Introduction:

Page 3, row 45: the authors comment that the majority of fall risk assessment tools have not been validated and concurrently introduce FRAT, however without providing evidence that indeed FRAT has been assessed with regard to validity and reliability (predictive value etc)

Response to reviewer: Thank you for your comments... The authors (SRC and BP) had validated that the search criteria correctly identified patients i.e., by checking identified patients records we could confirm that patients met the search criteria.

#### Methods:

Page 4, row 40: given the aim of the study and the described methods the inclusion criterion 'having a fall risk' or using psychotropic medication appears to be faulty? I would expect that the falls diagnosis would be sufficient? I assume that all fall-related admissions were taken into account and that non-users of psychotropics were not excluded? Moreover, it is unclear from the methods section how the inclusion criterion increased fall risk was assessed?

Response to reviewer: as per NICE patients with specific risk criteria e.g., previous falls or taking psychotropic medication would be placed at a higher risk of falls compared to people with no history of falls or those not taking psychotropic medications. Therefore, these patients were deemed to be at "risk2". However, we accept that falls diagnosis in itself would be sufficient to denote a risk of falls in future.

Description of described outcomes is incomplete in the methods section, among others description of how 'admission costs' were determined and analyzed is missing, same for 'psychotropic expenditures'. Furthermore, the outcome referral to falls clinic is not mentioned in methods section, but results are presented in results section.

Response to reviewer: this section has been amended accordingly.

#### Results:

Table 1: trend per psychotropic drug group, is not informative and can be removed.

Response to reviewer: Table 1 has been removed as requested.

### Discussion:

Preferably the first paragraph would contain the main outcomes and conclusions, not a general statement on falls prevention and FRAT, please replace or rearrange.

Response to reviewer: This section has been amended accordingly.

Please elaborate on possible confounding effects (and other limitations) of the interrupted time series and include whether any other health care/societal changes may have contributed to the observed changes over time.

Response to reviewer: This section has been amended accordingly.

Reviewer: 3

Reviewer Name: Joseph Nolan

Institution and Country: Northern Kentucky University, USA

Please state any competing interests or state 'None declared': None Declared

### Comments to the Author

Please note this is a statistical review only. Also the editor should note that time series is at the fringe

of my expertise, so if it were desired to send it to a statistical reviewer who focuses more in that area I would not be at all offended.

After reading through the manuscript, the methodology seems reasonable to me. I do have the following questions/comments (all of which are just related to basic statistics, not the time-series method itself):

1. It appears that the response variable was simply the number of falls, as well as cost. I am uncertain as to why these were not instead taken in a ratio relative to, for example, the total number of patients during the same time-frame. It seems to me that there are many reasons (including 28 vs. 31 days) that monthly numbers might not be comparable without doing that.

Response to reviewer: Good point, thank you...Although ratio is more informative and more accurate, the number and cost associated with falls were supplied by the CCG as numbers only and the total number of patients and costs were confidential data that can not be published.

2. (page 4) The statement that "while the cost of non-elective admission decreased non significantly at a rate of £1275 per month (p<0.087, 95% CI = [-2738, 186])." is badly misstated and should be rewritten. If there is not statistical evidence of a decrease, then you should never suggest that a difference is somehow shown by including the sample mean. Rather, you should say something like: "while there was not evidence of a change in the cost per month (p<0.087, 95% CI = [-2738, 186]". Of course with a larger sample you may well get evidence (this fact deserves comment), but you do not have that evidence here.

Response to reviewer: This section has been amended accordingly.

3. (page 4) Ideally your other statements should incorporate CI rather than sample mean. For example, utilization of quetiapine increased at an estimated rate somewhere between 2.6 and 16.7 DDD per month (not exactly 9.65 which is only the rate for the sample). As you have included the CI, I am willing to overlook this but as you are making inference it would be superior to interpret the CI rather than the sample mean.

Response to reviewer: This section has been amended accordingly.

4. (page 4) The statement about "decreasing non-significantly" at the bottom of the page is also not appropriate (see 2 above, and rewrite it). Also, remove the word "significantly" everywhere in the paper. A decrease that is accompanied by a small p-value is a decrease, and the word "significantly" adds absolutely nothing to it. You might want to consider whether the CI shows the decrease to be "substantial" and if so include that word (e.g. at least £986 for the statement at the top of page 5.) I notice this phrase appears in the abstract too, so that should be fixed as well. Response to reviewer: the word significantly has been deleted everywhere in this manuscript.

Please note that I would absolutely require the changes in items #2 and #4. #1 is more of a query but seems like a logical suggestion, and #3 is a suggestion toward better language.

Reviewer: 4

Reviewer Name: Rob Penfold

Institution and Country: Kaiser Permanente Washington Health Research Institute Please state any competing interests or state 'None declared': none declared

Comments to the Author

This is a nicely conducted quasi-experimental study of the impact of a falls prevention program. It's an important topic and the manuscript is generally well written. However, there are three issues that need to be addressed.

The methods section needs more description of the modeling. In particular, there is no description of any autoregressive terms. If an autoregressive model was not used then the analysis must be redone. See papers by Ariel Linden on how to do this using STATA.

https://journals.sagepub.com/doi/pdf/10.1177/1536867X1501500208

Response to reviewer: This section has been amended.

Second, the authors must include a graph showing the deflection in falls rates.

Response to reviewer: a graph has been added.

Third, a discussion of competing interventions is absent. The authors need to assure us that other factors that occurred contemporaneously are not plausible explanations for the decrease in fall rates. ITS analyses control for baseline trends but internal validity is reduced if other programs began at the same time.

Response to reviewer: This section has been amended accordingly.

### **VERSION 2 - REVIEW**

REVIEWER	Nathalie van der Velde University of Amsterdam, Department of Internal Medicine
REVIEW RETURNED	04-Jan-2021

GENERAL COMMENTS	Although the majority of the reviewers' comments have been sufficiently met, however one essential item that needs to be addressed remains, namely missingness of a clear definition of the outcome 'falls' and 'non-elective admission'.  Specifically: Page 2, row 27: non-elective admissions for falls? If not, than the conclusion does not match the the methods and the results section of the abstract (row 35 says that the number of falls go down).  Number of non-elective admissions cannot be interchanged with the term number of falls. If the definition of the outcome was indeed fall-related non-elective admissions, than this needs to be defined clearly both in the abstract and in the methods section (see below). Furthermore, if this is indeed the case, than the outcome cannot be defined as 'a fall' but should be renamed (and explained as) a 'serious injurious fall' (as it led to hospital admission)  Page 4, row 54 and onwards: From the methods section it appears that the main outcome is indeed admissions to the falls service only as opposed to any non-selective admission to any ward and in the discussion section admission to surgery is introduced as outcome measure. All in all, the definition of the primary and secondary outcomes are not clearly stated and throughout the paper (abstract, results, discussion) number of falls and number of non-elective admissions as well as non-elective admission to the falls services appear to be interchanged. Please clarify in the methods section the definition of the main outcome: is it indeed number of non-elective

	diagnosis falls that is mentioned as inclusion criterion? Please add separate paragraph on the exact outcome definitions (primary and secondary)
REVIEWER	J Nolan
	Northern Kentucky University, Mathematics & Statistics
REVIEW RETURNED	06-Dec-2020
GENERAL COMMENTS	All of my previous concerns have been appropriately addressed.
REVIEWER	Robert B Penfold
	Kaiser Permanente
REVIEW RETURNED	02-Jan-2021
GENERAL COMMENTS	The research ethics statement does not make sense to me. Perhaps the rules are different in the UK. The study involves human subjects and would at the minimum require an research ethics board determination of "exempt".  Include a reference for ITSA command in STATA.  Include references for the seasonal adjustment and autocorrelation approaches.  Provide statistics on exactly how the models were adjusted (e.g., report the summary statistics for seasonality/autocorrelation).  The results section begins with "The interrupted time series analysis showed that from April 2015 to June 2017, there were no evidence of change in the level and trend of the number and the cost of non-elective admissions per month" However, Figure 2 very clearly shows that non-elective admissions were increasing during the pre-FRAT period.  Figure 2: Please display the observed data as a scatterplot rather than a smoothed line.  There is insufficient data presented to conclude that psychotropic medication prescribing decreased.  In my opinion, the authors have not been responsive to Dr. Nolan's question about rates. If the count (number) of falls was modeled then a Poisson model is necessary.

# **VERSION 2 – AUTHOR RESPONSE**

Reviewer: 3

Dr. J Nolan, Northern Kentucky University

Competing interests of Reviewer: None Declared

Comments to the Author:

All of my previous concerns have been appropriately addressed.

Reviewer: 4

Dr. Robert B Penfold, Kaiser Permanente

Competing interests of Reviewer: None Declared

#### Comments to the Author:

The research ethics statement does not make sense to me. Perhaps the rules are different in the UK. The study involves human subjects and would at the minimum require an research ethics board determination of "exempt".

Response to reviewer: Service evaluation is defined by the National Research Ethics Service (NRES) as "Service evaluation seeks to assess how well a service is achieving its intended aims. It is undertaken to benefit the people using a particular healthcare service and is designed and conducted with the sole purpose of defining or judging the current service."

Reference : National Research Ethics Service (NRES). Defining research. 2013. http://www.nres.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=355

NRES guides that the results of service evaluations are mostly used to generate information that can be used to inform local decision-making. As this study was looking at the implementation of a pre-existing tool to aid what was already considered good practice, it was deemed to be a service evaluation by the local research ethics committee.

(Ref Twycross A, Shorten A Evid Based Nurs July 2014 vol 17 (number 3) (available from ebn.bmj.com at http://dx.doi.org/10.1136/eb-2014-101871)

what is the difference?

Alison Twycross,

1

Allison Shorten

2

Knowing the difference between health service evaluation, audit and research can be tricky especially for the novice researcher. Put simply, nursing research involves finding the answers to questions about "what nurses should do to help patients," audit examines "whether nurses are doing this, and if not, why not,"

1

and service

evaluation asks about "the effect of nursing care on patient experiences and outcomes." In this paper, we aim to provide some tips to help guide you through the decision-making process as you begin to plan your

evaluation, audit or research project. As a starting point box 1 provides key definitions for each type of project.

How do I decide whether my project is service evaluation, audit or research?

Despite their differences there are clear similarities between service evaluation, audit and research. All start with important questions, require data to answer the questions, and each needs a systematic approach and sound design.

1

Research methodologies are often used to evaluate practice or measure outcomes, so this can be confusing. The key differences in approach relates mostly to project scope and intent. Table 1 outlines key criteria to help guide your decision-making about what might be the right approach for different types of clinical projects.

So if, for example, we were to explore management of children's postoperative pain we could:

- 1 Undertake a service evaluation and ask parents and children to complete a questionnaire about how well they think postoperative pain was managed for them during their experience on the paediatric unit.
- 2 Complete an audit by comparing postoperative pain management practices in the paediatric unit to current best practice guidelines using a standardised data collection tool.
- 3 Undertake a research project to identify the most effective postoperative pain management practices for children.

Online resource

The Health Research Authority in the UK has a useful

online decision-making tool—see:

http://www.hra.nhs.uk/research-community/before-you-

apply/determine-whether-your-study-is-research/

Box 1 Definitions of service evaluation, audit and research

▶ What is service evaluation?

Service evaluation seeks to assess how well a service is achieving its intended aims. It is undertaken to benefit the people using a particular healthcare service and is designed and conducted with the sole purpose of defining or judging the current service.

2

The results of service evaluations are mostly used to generate information that can be used to inform local decision-making.

▶ What is (clinical) audit?

The English Department of Health

3

states that:

Clinical audit involves systematically looking at the procedures used for diagnosis, care and treatment, examining how associated resources are used and investigating the effect care has on the outcome and quality of life for the patient.

Audit usually involves a quality improvement cycle that measures care against predetermined standards (benchmarking), takes specific actions to improve care and monitors ongoing sustained improvements to quality against agreed standards or benchmarks.

45

▶ What is research?

Research involves the attempt to extend the available knowledge by means of a systematically defensible process of enquiry.

6

Table 1 Key criteria to consider when deciding whether your project is service evaluation, audit or research

27
Service
evaluation Audit Research
Overall aim
(intent)
To judge
the quality
of the
current
service
То
measure
clinical
practice
against a
standard
To generate
new
knowledge/
add to the
body of
knowledge
Initiated by Service
providers
Service
providers
Researchers
Involves a new

treatment

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Evid Based Nurs July 2014  volume 17  number 3
Service evaluation, audit and research:
what is the difference?
Alison Twycross,

Allison Shorten

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Knowing the difference between health service evaluation, audit and research can be tricky especially for the novice researcher. Put simply, nursing research involves finding the answers to questions about "what nurses should do to help patients," audit examines "whether nurses are doing this, and if not, why not,"

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evaluation asks about "the effect of nursing care on patient experiences and outcomes." In this paper, we aim to provide some tips to help guide you through the decision-making process as you begin to plan your evaluation, audit or research project. As a starting point box 1 provides key definitions for each type of project. How do I decide whether my project is service evaluation, audit or research?

Despite their differences there are clear similarities between service evaluation, audit and research. All start with important questions, require data to answer the questions, and each needs a systematic approach and sound design.

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Research methodologies are often used to evaluate practice or measure outcomes, so this can be confusing. The key differences in approach relates mostly to project scope and intent. Table 1 outlines key criteria to help guide your decision-making about what might be the right approach for different types of clinical projects.

So if, for example, we were to explore management of children's postoperative pain we could:

1 Undertake a service evaluation and ask parents and children to complete a questionnaire about how well they think postoperative pain was managed for them during their experience on the paediatric unit.

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Online resource

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Box 1 Definitions of service evaluation, audit and research

▶ What is service evaluation?

Service evaluation seeks to assess how well a service is achieving its intended aims. It is undertaken to benefit the people using a particular healthcare service and is designed and conducted with the sole purpose of defining or judging the current service.

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The results of service evaluations are mostly used to generate information that can be used to inform local decision-making.

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Nursing, New Haven,

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Connecticut, USA
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states that:

Clinical audit involves systematically looking at the procedures used for diagnosis, care and treatment, examining how associated resources are used and investigating the effect care has on the outcome and quality of life for the patient.

Audit usually involves a quality improvement cycle that measures care against predetermined standards (benchmarking), takes specific actions to improve care and monitors ongoing sustained improvements to quality against agreed standards or benchmarks.

45

► What is research?

Research involves the attempt to extend the available knowledge by means of a systematically defensible process of enquiry.

6

Table 1 Key criteria to consider when deciding whether your project is service evaluation, audit or research

27

Service

evaluation Audit Research

Overall aim

(intent)
To judge
the quality
of the
current
service
То
measure
clinical
practice
against a
standard
To generate
new
knowledge/
add to the
body of
knowledge
Initiated by Service
providers
Service
providers
Researchers
Involves a new
treatment
No No Sometimes
Randomisation No No Sometimes
Allocates
patients to

treatment

groups No No Sometimes Editor's choice Scan to access more free content 10.1136/eb-2014-101871 1 Faculty of Health and Social Care, London South Bank University, London, UK 2 Yale University School of Nursing, New Haven, Connecticut, USA Correspondence to: Dr Alison Twycross Faculty of Health and Social Care, London South Bank University, London SE1 0AA, UK; alisontwycross@hotmail.com

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Include a reference for ITSA command in STATA.

Response to reviewer: A reference has been added.

Include references for the seasonal adjustment and autocorrelation approaches.

Response to reviewer: A reference has been added.

Provide statistics on exactly how the models were adjusted (e.g., report the summary statistics for seasonality/autocorrelation).

The results section begins with "The interrupted time series analysis showed that from April 2015 to June 2017, there were no evidence of change in the level and trend of the number and the cost of

non-elective admissions per month" However, Figure 2 very clearly shows that non-elective admissions were increasing during the pre-FRAT period.

Response to reviewer: This point has been amended previously according to Reviewer 3 (Dr. Nolan) comments.

Figure 2: Please display the observed data as a scatterplot rather than a smoothed line.

Response to reviewer: This figure has been changed from smooth line to a scatterplot graph

There is insufficient data presented to conclude that psychotropic medication prescribing decreased.

In my opinion, the authors have not been responsive to Dr. Nolan's question about rates. If the count (number) of falls was modelled then a Poisson model is necessary.

Response to reviewer: As mentioned above, we feel that the comments from Reviewer 3 (Dr. Nolan) concerns have been appropriately addressed.

Reviewer: 2

Dr. Nathalie van der Velde, University of Amsterdam

Competing interests of Reviewer: None Declared

Comments to the Author:

Although the majority of the reviewers' comments have been sufficiently met, however one essential item that needs to be addressed remains, namely missingness of a clear definition of the outcome 'falls' and 'non-elective admission'.

Specifically:

Page 2, row 27: non-elective admissions for falls? If not, than the conclusion does not match the the methods and the results section of the abstract (row 35 says that the number of falls go down). Number of non-elective admissions cannot be interchanged with the term number of falls. If the definition of the outcome was indeed fall-related non-elective admissions, than this needs to be defined clearly both in the abstract and in the methods section (see below). Furthermore, if this is indeed the case, than the outcome cannot be defined as 'a fall' but should be renamed (and explained as) a 'serious injurious fall' (as it led to hospital admission)

Page 4, row 54 and onwards: From the methods section it appears that the main outcome is indeed admissions to the falls service only as opposed to any non-selective admission to any ward and in the discussion section admission to surgery is introduced as outcome measure. All in all, the definition of the primary and secondary outcomes are not clearly stated and throughout the paper (abstract, results, discussion) number of falls and number of non-elective admissions as well as non-elective admission to the falls services appear to be interchanged. Please clarify in the methods section the definition of the main outcome: is it indeed number of non-elective admissions at the falls service or at the surgery ward? Or were fall incidents reported/collected separately and if so, was this the ICD10 diagnosis falls that is mentioned as inclusion criterion? Please add separate paragraph on the exact outcome definitions (primary and secondary).

Response to reviewer: Thank you for your constructive comments. A paragraph about the primary and secondary outcomes have been added.

# **VERSION 3 – REVIEW**

REVIEWER	Nathalie van der Velde	
	University of Amsterdam, Department of Internal Medicine	
REVIEW RETURNED	19-Feb-2021	
GENERAL COMMENTS	The authors have sufficiently addressed the comments of the earlier	
	review in their revision.	
REVIEWER	J Nolan	
	Northern Kentucky University, Mathematics & Statistics	
REVIEW RETURNED	20-Apr-2021	
GENERAL COMMENTS	I was comfortable with accept on my previous review and that still	
	remains the case.	
REVIEWER	Robert B Penfold	
	Kaiser Permanente	
REVIEW RETURNED	11-Mar-2021	
GENERAL COMMENTS	The investigators have not used the correct model specification. A	
	Poisson model is necessary for count data (number of admissions	
	for falls).	