PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (see an example) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Using computerised decision support to improve compliance of cancer multidisciplinary meetings with evidence-based guidance
AUTHORS	Vivek Patkar, Dionisio Acosta, Tim Davidson, Alison Jones, John Fox and Mohammed Keshtgar

VERSION 1 - REVIEW

REVIEWER	Cath Taylor Research Fellow Florence Nightingale School of Nursing and Midwifery Kings College London UK No competing interests
REVIEW RETURNED	17/02/2012

THE STUDY	Methods: 1) It is not entirely clear upon what information the recommendations of MATE are based upon - is it simply on diagnostic markers (radiology/hisotology) or does it take account of any patient-based factors (demographics, co-morbidities, preferences of patients etc?). Blazeby's work has shown that failure to consider such information is a major reason for non-implementation of recommendations (assocated with delays to treatment etc). Could this system work for complex cases or is it mostly for 'routine' cases? If so could one benefit of such a system be to help MDTs to prioritise cases according to their complexity - ensuring that more time is spent on complex cases and that the routine case that are protocol led are instead agreed consensually to be such? 2) Line 52-56 - is it 3.2% of the 7% of discordant cases or3.2% of decisions? this is not clear. Also what does it mean that 'decisions were 'corrected' by the treating clinician in the results clinic'. Does this mean that the MDT recommendation was not protocol led and was 'corrected' to be so in the clinic (i.e. MATE was 'right')? 3) page 12 line 4-5 - was eligibility for trial recruitment checked in terms of the factors that are not considered by MATE (fitness, comoribidities etc)? If not then this figure could be an inflation of the percentage over and above the team recommendations for trials. 4) line 27-28 I do not understand: 'the need for practical knowledge validation and maitenance mechanisms' - suggest this may need rewording/explaining? 5) who enters the data into MATE? what kind of pre-meeting preparation is required by whom and how much time does it take? what training was needed? Who enters the data during the meetings (same qustions re: time and training) - did you measure whether the use of MATE extended meeting length? References: The primary source regarding peer review (line 32-39) is a NCAT

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	report (cited in reference 3). There has been a more recent report since this one as well: National Cancer Action Team. National Cancer Peer Review Programme Report 2009/2010: An overview of the findings from the 2009/2010 National Cancer Peer Review of Cancer Services in England. National Cancer Action Team: London The primary source for the national suvey is Taylor, C. Ramirez, AJ. (2009) Multidisciplinary team members' views about MDT working: results from a survey commissioned by the National Cancer Action team. www.ncin.org.uk/mdt There has been a systematic literature review of decision making in cancer MDTs that should probably be included: Lamb BW, Brown KF, Nagpal K, Vincent C, Green JSA, Sevdalis N (2011) Quality of care management decisions by multidisciplinary teams: a systematic review. Annals of Surg Oncol: doi 10.1245/sI0434-011-1675-6. Stats methods: not applicable - no section on this but the data is purely descriptive so not relevant. No supplementary documents.
RESULTS & CONCLUSIONS	Covered above - this paper does not clearly deliniate into methods and results as it is a service improvement template- points above cover the 'no' above.
REPORTING & ETHICS	CONSORT etc not relevant to this. Ethics: P10line36 - appropriate ethics and r&d were obtained, but p15 states ethics approval was not required. This needs further explanation - how was patient data obtained/stored/analysed in order to avoid requiring ethics approval?
GENERAL COMMENTS	This is a really exciting innovative project with potential for support and changing the way that MDT discussions take place (at least for breast cancer). This is important not least in light of its potential for streamlining decision making and perhaps helping teams to prioritise the cases that are complex (non-protocol led) and require more discussion. This becomes increasingly important with an ageing population and incidence increasing. Some comment about the applicability beyond breast cancer would be useful as would addressing the patient-centredness issues - ensuring that recommendations are both evidence-based and patient centred- whilst I acknowledge that this is not suggested as a replacement of MDT discussion where these factors should all be considered. Can the system come up with a ranking of options for example - whereby if the fitness of the patient is in question or they refuse a recommendation for any reason it can determine the next best in terms of evidence?

REVIEWER	Jamie Coleman Senior Clinical Lecturer in Clinical Pharmacology and Medical Education School of Clinical and Experimental Medicine College of Medical and Dental Sciences (CMDS) Medical School Building University of Birmingham United Kingdom
REVIEW RETURNED	18/02/2012

GENERAL COMMENTS	This quality improvement report about the use of a locally-developed

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	CDS system for cancer MDTs provides qualitative and audit data about a new system. The description of the system is similar to many other cancer tracking systems that are being developed around the country – but does benefit from a large volume of patients being audited and some good CDS content including guideline suggestion and trial accrual. In general the article is well written and mostly appropriately referenced – although at least one of the references specifically about CDS is based more in the order entry arena rather than EHR systems. This article may be of some general interest to the readers of BMJ open as I think that the approach may be of benefit to others. Whilst there is a web reference to more detail about the system – a summarised clinical description of the system may be warranted (above general principles) in this paper, especially as most clinicians are unlikely to be able to gain access to Lecture Notes in Computer Sciences. The weakest area of the paper is the description and reporting of the data from the questionnaire survey where there is little description of methodology and must be open to bias. Providing data to one significant figure from 48 questionnaires without any indication about the content or methods of the questionnaire is dubious. Some areas for consideration in the paper: – The authors may wish to expand the acronym MATE in the abstract – as this is what many readers will be able to read on the front page of BMJ open. – Assuming that MATE was used in the context of the current MDM, this would mean that the effect of change should perhaps read "MATE identified 61% more patients who were eligible for recruitment into clinical trials than the MDT alone and its…" – In the problem statement you may wish to mention that MDT meetings are no longer solely seen in cancer patients and they are becoming much more common in complex surgical care, cardiovascular disease, transplant and other clinical domains. – On page 8 of 19 (according to the pdf) in the paragraph starting "Prior to the introduction of our…" – the last sentence is written poorly and ends with etc – this doesn't make sense and some thought needs to be given to rewriting these points more clearly. – Readers may be interested to know what controlled vocabulary was used. – On page 10 of 19 – there are 2 references in a footnote – these need to be moved to the main reference section as proper web references. – You mention some of the challenges in the discussion but may also wish to comment about the unintended consequences of IT in general – deskilling of clinical decision making, system downtime, data security – areas that all new health IT have to face.

VERSION 1 – AUTHOR RESPONSE

We are thankful to the editorial team for the interest taken in the manuscript. We would also like to thank the reviewers for their valuable comments and recommendations. We have carefully gone through each recommendation and tried to respond appropriately in the revised manuscript. All changes in the revised manuscripts are tracked.

VERSION 2 – REVIEW

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REVIEWER	Cath Taylor Research Fellow Kings College London UK No competing interests.
REVIEW RETURNED	28/03/2012

THE STUDY	Research Q: It would be helpful if the research question/s were explicitly stated. The title is broad 'improving meetings' and conduct of meetings is mentioned as an aim but this is not measured - the focus seems to be on the concordence of MATE recommendations with MDT recommendations and recruitment into trials, with some estimate of acceptability of it but taken from a workshop not the actual users. Suggest clarifying the research questions would add structure to the paper. Title and article focus should possibly be revised in line with this. Methods: Clarity about how MATE was evaluated is needed: it is stated it was used prospectively (presumably in-situ?) but who operated it and could the team see the output? or was it used outside of the meeting? If used in situa and team could see output this casts the concordance exercise into doubt as the team would have seen the MATE recommendation. Also, the evaluation of data is not entirely clear: Were MATE recommendations compared to the MDT written recommendations, or were "MATE records amended to be in line with official MDM records" as stated in the evaluation phase section? I presume the former but this reads very confusingly at the moment. Also the methods imply an interative process with user participation (feedback, surveys etc are mentioned) but there is no detail or data presented regarding this. "working closely with members" is not sufficient. A systematic review is mentioned but no further details given - review of what literature? is this described/published elsewhere? Also, some methods appear in results - e.g. detail about content of questionnaire belongs in methods rather than results. Outcome: see above re: research question. Abstract: trial eligibility should possibly be described in terms of 'potentially' eligible as subsequent checks outside of meeting had to confirm this? Some jargon needs explaining e.g. 'scalable knowledge maintenance mechanisms' - what does this mean?
RESULTS & CONCLUSIONS	Clarity on research questions and methods required as stated above in order to judge the credibility of findings. If MATE was used in situ and team could see the recommendations then it might not be surprising that there was such high concordance. Questionnaire data: small numbers but would be interesting to see if any major differences in opinion between the clinicians and other respondents (i.e. those that would use MATE and others).

VERSION 2 – AUTHOR RESPONSE

We are thankful for accepting the manuscript (ID bmjopen-2011-000439) for the publication in BMJ open.

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We have revised the manuscript in keeping with all the recommendation from the reviewers. All changes in the revised manuscripts are tracked. I would like to take this opportunity to summarise here the reviewers comments and the modifications in the revised manuscript for the clarity.

1- It would be helpful if the research question/s were explicitly stated. The title is broad 'improving meetings' and conduct of meetings is mentioned as an aim but this is not measured - the focus seems to be on the concordance of MATE recommendations with MDT recommendations and recruitment into trials, with some estimate of acceptability of it but taken from a workshop not the actual users. Suggest clarifying the research questions would add structure to the paper. Title and article focus should possibly be revised in line with this.
The title and article focus modified to reflect the specificities of the study and research question.
2- A systematic review is mentioned but no further details given - review of what literature? is this described/published elsewhere?
Added the reference [16]
3- Clarity about how MATE was evaluated is needed: it is stated it was used prospectively (presumably in-situ?) but who operated it and could the team see the output? or was it used outside of the meeting?
Further text added to explain the evaluation (page 8 in the word doc)
4. Also, some methods appear in results - e.g. detail about content of questionnaire belongs in methods rather than results.
Amended appropriately (page 9 in the word doc)
4. Some jargon needs explaining e.g. 'scalable knowledge maintenance'
Amended appropriately (page 11 in the word doc)
5. Abstract: trial eligibility should possibly be described in terms of 'potentially' eligible as subsequent checks outside of meeting had to confirm this
Amended appropriately.

In the revised manuscript all the changes are tracked and the text is commented where it addresses the reviewer's specific recommendations.

VERSION 3 - REVIEW

REVIEWER	Cath Taylor, Research Fellow Kings College London UK No competing interests.
REVIEW RETURNED	30/04/2012

THE STUDY	Abstract needs updating to reflect changes to paper (e.g. 'and to improve the overall conduct of the meeting') should be removed as this is not measured. Participants section is a bit misleading as no data from the team members and no data is provided regarding the user participation process. Suggest this is either included or omitted from the paper. Participants are the delegates at the DP conference as this is where the data regarding acceptability is from - there is no mention of this in the abstract. Minor things: Is EHR defined in full anywhere? 'separate data entry person' is not well phrased - was this an MDT coordinator? researcher? better to be explicit about who did it and if they were independent of the research team? Some methods/results are still confused re: questionnaire about acceptability. First paragraph of results is methods, and some of the methods is results (e.g. response rate is results, but sampling and

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	content of QR, and treatment of data for analysis is methods).
RESULTS & CONCLUSIONS	See above comments re: presentation of data. Interpretation/conclusions: the statement in 'strategies for change and effects' that the performance of MATE 'established the confidence of the breast team at RFH' is not backed up by any evidence/data so not sure this can be stated so confidently. Also there is no data to support the statements made about the principles of the implementation strategy and this does not fit with any of the research questions stated. Can the authors include anything in the methods about the development of MATE and have a research question around it too - how best to develop a system that can support decision-making and integrate with existing work processes? It would greatly strengthen the paper if the process of developing MATE (the 'user involvement' they describe) could be included and then the preliminary testing.

VERSION 3 – AUTHOR RESPONSE

Many thanks for the review. We have made appropriate changes in the manuscript as a response to the reviewer's comment.

1. Abstract needs updating to reflect changes to paper
Abstract is amended.
2. Is EHR defined in full anywhere?
Now corrected..
3. 'separate data entry person' is not well phrased..
Restated as “research associate”
4. Some methods/results are still confused…
Redrafted.
5. the statement in 'strategies for change and effects' that the performance of MATE 'established the confidence of the breast team at RFH' is not backed up by any evidence/data so not sure this can be stated so confidently..
We agree with the reviewer’s observation about the need of more details (and data) to explain the system development and implementation strategies. We followed CommonKADS approach for the context analysis and system development. We believe that, how best to develop knowledge-based informatics systems like MATE, could be indeed very interesting research question and a nice subject for a seperate paper (which we intend to write) for the target audience. To avoid loading current manuscript and in agreement with the reviewer, I have taken out ‘'strategies for change and effects’ part from the manuscript, as it contributes little to the main research question.

In the revised manuscript all the changes are tracked and the text is commented where it addresses the reviewer’s specific recommendations.

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