Author's response to reviews

Title: Implementing computerised Aboriginal and Torres Strait Islander Health Checks in primary care for clinical care and research: a process evaluation.

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Author's response to reviews: see over
Dear Adrian Aldcroft,

Thank you for considering our article, “Implementing computerised Aboriginal and Torres Strait Islander Health Checks in primary care for clinical care and research: a process evaluation.”

We have responded to reviewers’ comments and revised the article accordingly. Our point by point response follows below.

The user satisfaction survey requested by the editor is included in this submission.

Thank you once again for considering our manuscript for publication in BMC Medical Informatics and Decision Making.

Yours Sincerely,

Dr Geoffrey K.P. Spurling (corresponding author),
Dr Deborah A. Askew,
Professor Philip J. Schluter,
Associate Professor Noel E. Hayman

Reviewer 1

Thank you for the opportunity to review this article. This seemed to me to be a description of a computerization project rather than research.

Reply
This paper was initially submitted as a study protocol but the Managing Editor of BMC Medical Informatics and Decision Making considered that it was more aligned with a research article and asked us whether we were willing for our article to be resubmitted under the research article category. We have written this manuscript as a research article.

You describe the implementation of a computerized health check. Was this part of an Electronic Medical Record (EMR), and was it additional templates programmed for the EMR?

Reply
These are additional templates in an existing form of EMR called ERIC which we have made clearer in the background:
“Information technology experts built the templates within ERIC, a Queensland state government computerised health record information management system already being used in a few Brisbane hospitals and the local community health sector as an electronic medical record. At the IIHS, we made this web-based, password-protected system available only to the clinical user group at the IIHS to protect patient confidentiality. The ERIC system can generate a Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) collating all patient level data from a given computerised HC template for any given time period. When regular Aboriginal and Torres Strait Islander patients present to the IIHS, nursing staff initiate computerised HCs in ERIC, medical staff complete them and administration staff attach the completed computerised HC to the patient’s medical record in the clinic’s practice software (Practix) as a PDF (portable document format).”

There is now extensive literature on implementation of EMRs and other computerized records. You demonstrated that a computerized record was implemented in this setting; how does this add to the knowledge base, and how is it unique and different than other settings?

**Reply**

*It is unique in this setting for the following reasons:*

- **Issues of confidentiality with the creation of computerised forms and databases are particularly important to manage in a culturally appropriate way in Aboriginal and Torres Strait Islander communities. This study shows that these issues can be overcome in the Aboriginal and Torres Strait Islander primary health context.**

- **This study shows that creating computerised health checks is feasible and can facilitate needed research in urban Aboriginal and Torres Strait Islander populations while enhancing clinical care.**

*We have therefore added a sentence to the beginning to the discussion to better demonstrate this first point:*

> “The issues of confidentiality, trust and respect that arise with the creation of computerised forms and databases are particularly important to manage in a culturally appropriate way in Aboriginal and Torres Strait Islander communities.”

The second point is already covered later in the discussion regarding the potential to “respond to calls for research which informs strategies to address the health needs of Aboriginal and Torres Strait Islander peoples living in urban areas in Australia.”

You provide tables on number of health checks done. Was there an improvement in terms of processes? For example, table 2 presents some numbers for retinal screens for computerized vs. non computerized retinal screen, but no statistical analysis.

**Reply**

*We have changed the tables to present measures of satisfaction but also the numbers of computerised versus paper-based health checks with statistical analysis. We have also changed the methods and results text to reflect this. For more detail see our response to reviewer 2.*

As well, there was a recent systematic review in BMJ showing that "routine well-person health checks" may not be associated with improvement in health outcomes. Is there evidence that they are associated with improved outcomes for the population being studied?
We have added the following sentences to the introduction:

“The evidence for this practice in vulnerable populations is lacking. A systematic review of HCs conducted in primary care settings found improved delivery of recommended clinical preventive services and the authors felt this justified their continued implementation [5]. However, a more recent systematic review published in 2012 by Krogsboll and colleagues reported that general HCs for well adults conducted in primary care or the community were not beneficial and did not reduce morbidity, mortality nor disease specific mortality. The inclusion criteria for this review excluded older people, children and studies looking specifically at risk factors (such as hypertension) or disease (such as diabetes). Additionally, the majority of trials and patients in this systematic review were conducted in the community where participants were invited to participate which the review authors acknowledged could result in selection bias favouring the well [6]. Clinically significant benefits have been found for other groups receiving HCs such as elderly people who benefited through reduced nursing home admissions, reduced falls and improved physical function [7]. While ethnicity was not an exclusion criteria for the most recent systematic review of HCs, all the included studies were conducted in North America or Europe and no information about the impact of HCs on Indigenous populations was presented [6].”

Reviewer 2

Thanks for asking me to review this interesting paper exploring computerised Aboriginal and Torres Strait Islander Health Checks in a primary care centre. I think it should be published, as a contribution to the literature on the use of computerised medical records for vulnerable populations. However, I think there are some areas where the paper is less than clear, and I would encourage the authors to consider revising the manuscript.

Major compulsory revisions: This paper is a process evaluation of the introduction of a computerised record for ATSI Health Checks, in which the measures are satisfaction among implementers, uptake, and utility for research purposes. The authors should clarify that it’s a process evaluation and include that term in the title (otherwise the paper may be overlooked in systematic reviews on this topic).

Reply

We have added the term, “a process evaluation” to the title, which now reads:

“Implementing computerised Aboriginal and Torres Strait Islander Health Checks in primary care for clinical care and research: a process evaluation”

The paper goes a little off track when it describes the purpose of the research that the computerised record data may be used for, and could be trimmed here.

Reply

We have removed details relating to the validation analysis of computerised health check data and community consultation process. We have left in detail relating to the ethical use of the database resulting from computerised health checks because these details will be important for those applying to use these data.

Particular comments:
Introduction: Could the authors reference some of the work on computerised health checks and their impact on preventive health care? At present the major purpose of the switch to computerised health checks reads as though it’s for marshalling the data into a form that’s more amenable to data extraction for research. How might this help improve clinical outcomes cf the paper version? If the purpose is solely about their contribution to better research (as the final sentence of the Introduction indicates) then the reference to clinical care in the title of the paper is misleading. However, it seems that the authors are making a case that improved data quality may improve clinical care for individual patients – if so, can they make the case for that in the introduction?

Reply
The primary motivation for moving to computerised forms was for research purposes, however we expect this move will have positive outcomes for individual patients as well. We feel that the systematic review by Chaudhry referenced in the introduction is a reasonable reference for this. We have changed the objective of the study to reflect the reviewer’s suggestion regarding what our measures are:

“The objective of this study is to describe the introduction of computerised HCs at the IIHS and evaluate their implementation in terms of user satisfaction, uptake, and utility for research purposes.”

Methods section: The methods section includes a section on the research and could be trimmed significantly (eg p 12, second par. How you will handle missing data for research is relevant for research, but it’s not relevant to this process evaluation of the tool itself).

Reply
We agree and have removed most of this paragraph and also details on validation analysis.

The discussion on statistics used to measure uptake isn’t clear. The relevant comparison is between uptake using the paper form and uptake using the computerised form, not the comparison between the uptake among children and adults. As the authors state later, there are a number of organisational reasons for varying uptake in the different groups. You would be hoping that at a minimum, the new computerised form isn’t so unwieldy that it isn’t used, and that uptake rates remain reasonable. Calculating this is reasonably complicated since the denominator for the adults varies (include all those who enter the cohort each year, exclude those who had the health check in the preceding year), but it’s the relevant statistic.

Reply
We agree and have changed table 2 to reflect the advice of reviewer 2. It now provides a comparison of paper-based versus computerised HC uptake with statistical measures as advised by reviewer 1. The methods and results section now reflect this.

Regarding the denominators, except for the adult Indigenous health check, all of the health checks are annual (in fact 9 months minimum between HCs) so if you had a health check the year before the computerised HCs were introduced you would still be eligible for a health check in the year following their introduction. On May 1, 2010, adult health checks went from being biennial (minimum gap of 18 months between checks) to annual (minimum of 9 months). This means that everyone who had an adult health check in the year preceding (Sept 2008-2009) the last year of paper-based HCs (Sept 2009-2010) would have been eligible for a health check during the period Sept 2009-2010. Therefore, the denominators are not complicated and are all the regular patients attending the Inala Indigenous Health Service in 2009-2010 (for paper-based HCs) and 2010-2011 (for computerised HCs) regardless of when their last HC was.
Results: Satisfaction is a key process measure. The authors have reported a composite satisfaction measure, which is hard to interpret (what aspect were people satisfied with?). Could the authors present the responses to the various elements of satisfaction that were collected? I know the numbers are small, but the reader should be told the various elements of satisfaction. For example, are the different cadres of workers all equally satisfied?

Reply
We have added a table with all the results of the initial survey (table 1) and altered the text in the first paragraph of the results section:

“First 3 months: initial staff evaluation
The staff survey at three months received 14 responses (70% response rate). For most measures including overall satisfaction, staff (administrative, nursing and medical users) gave the recently introduced system of computerised HCs a median mark of 8 out of 10 (Table 1).”

Information regarding cadres was not asked during the survey. This was to be sure that individuals would not be identified in a small sample.

Uptake after 12 months. The denominator population can’t be the same for both the years. For the adults at least, the population in the second year will be reduced by the number who had the check in the first year, as it’s done every two years. Children will age out of the cohort, and enter it each year, but it may be that the denominator population in the second year with the computerised record may have been effectively reduced because of the high level of uptake the year before.

Reply
Please see our previous discussion on denominators. Because of the introduction of annual Indigenous health checks for adults on May 1, 2010, everyone who was a regular Aboriginal and/or Torres Strait Islander patient of the IIHS was eligible in both time periods. The denominators did increase as the number of patients attending IIHS increased and this is reflected in the new table 2. Additionally, regular patients were stratified by age meaning that the issue of ageing out of the cohort is accounted for.

Discussion: Could the authors discuss issues related to the usability of this check for clinical purposes, compared with the paper version? It’s now quite long and while thorough may impose a response burden on the doctor reading many pages of health check. The automatic peopling of the summary sheet mentioned on p 8, par 2 isn’t a decision support tool, it simply assists in summarising data.

Reply
We have included satisfaction measures relating to value of the tool and ease of entering data in Table 1 in the results section. We have added these sentences to the second paragraph in the discussion:

“The number of HCs conducted at the IIHS as a proportion of regular patients increased following the introduction of computerised HCs indicating at least similar clinician usability and acceptance compared to paper-based HCs. We suppose that the shorter form and other benefits of the computerised form such as constrained answers and a summary self-populating problem list have outweighed the challenge posed by a new information technology system.”

References to the self-populating problem list being decision support have been removed.
I would be interested in both the patients’ and clinicians’ views of the impact in the consultation of filling out the computerised data form. Does it limit the quality of the consultation because it’s quite prescriptive? And in turn, does that pose a burden for the patient?

Reply
We don’t know more than what has been presented in the new Table 1 where we asked clinicians and administrative staff at three months. We have included a sentence in the discussion to flag this as an important future research direction:

“This may have been a result of high staff turnover among child health nurses at the IIHS, lack of room for carrying out child HC or perhaps the computerised form for children was too long. Future evaluations of computerised HC would benefit from asking patients as well as clinical staff about the experiences of having a health check.”

You still need to scan in the pdf of the Health Check. Administrative time is saved for the purposes of research, but it’s not much changed for the purposes of clinical record taking.

Reply
It is significantly easier to attach a PDF document to practice software than to scan in multiple pages of a paper based HC and the administration staff articulated this in the 3 month survey and we have added their response to the results:

“Administrative staff noted that attaching the computerised portable document file (PDF) to the patient’s practice software was significantly easier than scanning in multiple pages of a paper-based HC.”

Could the authors speculate on aspects of their own clinical practice system that should be amended to create an integrated system in which the health checks are constructed and the data readily extractable?

Reply
We have added this sentence to the end of the discussion:

“We also expect developments in our general practice software will lead to better integration of computerised HC and the patient’s medical record within the one information technology system.”

Minor essential revisions
I’m not sure this is an Australian first, as stated in the discussion. What about ABCD used in the ACCHS sector.

Reply
We contacted Professor Ross Bailie, leader of the ABCD project and asked if he was aware of anyone using computerised Aboriginal and Torres Strait Islander health checks as data collection tools to which he replied, “I am not aware that this is being done anywhere else.”

Abstract: The last sentence of the methods section of the abstract addresses benefits of the projected research and shouldn’t be included here (just muddies the purpose of the paper)

Reply
This sentence has been removed.

Last two paragraphs in the Methods section about the nomination of research priorities by the community are very interesting, but only tangentially related to the purpose of this particular paper. Could the authors include this as a box, rather than part of the methods, and link to it?

Reply
We have maintained our reference to the community consultation process but have removed the details given it is, as the reviewer says, only tangentially related to this particular paper.