Author's response to reviews

Title: The impact of physician-nurse task-shifting in primary care on the course of disease: a systematic review

Authors:

Nahara Anani Martínez-González (Nahara.Martinez@usz.ch)
Ryan Tandjung (Ryan.Tandjung@usz.ch)
Sima Djalali (Sima.Djalali@usz.ch)
Thomas Rosemann (thomas.Rosemann@usz.ch)

Version: 3 Date: 11 June 2015

Author's response to reviews:

Manuscript MS: 2037943834165432

“The impact of physician-nurse task-shifting in primary care on the course of disease: a systematic review”

Authors’ response: Thank you very much for the thorough evaluation of our paper. We appreciate the constructive criticisms, have addressed all comments and provide our responses below.

Reviewer(s)’ Report to Author:

Version: 2 Date: 27 April 2015

Reviewer: Jane Ball

This well-written and clearly presented review addresses a topic that will be of international interest. By focussing specifically on disease progress measures, and restricting the review to RCTs, the authors offer a valuable new perspective on the issues of tasks shifting in primary care.

Discretionary revisions

1. The search strategy is clearly defined, results clearly reported (both in the tables and text), and the authors are to be commended on their use of the Cochrane Collaborations tool for assessing risk of bias in the studies reported.

a. More detail of how that was used – eg. if adapted – would be welcome. Were any other quality criteria used in the assessment? For example to assess the
internal and external validity?

Authors' response:

We included items both for reporting and conducting of a trial including the core items related to the internal validity i.e. sequence of allocation, concealment of allocation, blinding and intention to treat (attrition) following well-established recommendations (Juni, Witschi, Bloch, and Egger 1999; Higgins et al. 2011). We avoided the use of quality scores since these are not necessarily an objective measure of study quality and could lead to very different results as demonstrated by Jüni et al (1999) (Juni, Witschi, Bloch, and Egger 1999). We therefore evaluated each component of study quality separately and provide overall descriptive statements of the studies’ adequacy for each item assessed.

We have amended the section Methods/Study selection and quality assessment to reflect this recommendation (page 7, line 144, 149):

“Based on well-established guidelines [13], we assessed the methodological features of studies including core items of quality criteria that could influence the risk of bias (sequence and allocation concealment, blinding of participants, personnel and outcome assessors, and intention to treat (ITT)). Following the debate about the validity of scores for the assessment of risk of bias [14, 15], we did not calculate a composite score. We describe the studies’ adequacy in each item with an overall judgement of the quality of evidence.”

b. To help interpret the implications of the findings it would be useful to know if the studies reported/assessed treatment fidelity, in terms of the way in which activities were undertaken by both staff groups. For example, did studies include any measure of appointment time, or contact time, and was this the same for nurses and doctors? A reflection on this aspect of the trial designs would be a useful addition.

Authors' response:

We selected studies that examined task-shifting from physicians to nurses in patients of all ages and for all conditions in primary care. The aim reported in the included studies was to compare care provided by nurses to care provided by physicians in primary care. No study specifically stated to have aimed at controlling the length of consultation (or other parameter or outcome) as an issue of the quality of treatment fidelity. The studies explored these criteria as a consequence of the effectiveness of care in the intervention (nurse-led care) versus the control (physician-led care) groups and compared the results. It is on this basis that we also performed our analyses and discuss our results. We have taken account and reported about the limitations, as much as the descriptive information in the studies allowed us, such as the content of interventions, qualifications, skills and experience, use of protocols and validated tools.
In the Discussion we specified the intended aim of studies (page 12, line 314):

“In this systematic review we identified twelve trials aiming to compare physician-led care with nurse-led care under a task-shifting model in primary care.”

In regards to appointment or contact time, only four studies reported data for length of consultations. We have added these results which show longer consultations by nurses. We have amended the relevant sections accordingly:

Methods/Data abstraction – (page 7, line 153):

“Structured data collection forms were used independently by two authors to abstract the bibliographic details, population demographics, interventions (training competency, roles, type of care, clinical autonomy, use of guidelines, follow-up length), and outcome data (in all forms e.g. binary, continuous and/or semi-quantitative) including the length of consultations in minutes.”

Results – (page 12, line 300):

“Length of consultations

Four trials [24, 27, 32, 34] reported the length of consultations; all showed longer consultations by nurses than by physicians (WMD range: 1.90-3.80 minutes; 95%CI: 1.32 to 4.26).”

Discussion - (page 14, line 355):

“Disease complexity may have resulted in longer consultations by nurses than by physicians.”

2. The data extraction includes whether the studies relate to RNs, LPNs or both.

a. However, the narrative for each trial uses the generic term ‘nurses’ throughout – greater specificity of which category of nurses was involved, perhaps including the N=, would be useful.

Authors’ response:

We have made the necessary revisions by specifying the category of nurses involved in each study throughout the manuscript and on Table 3.

b. This could be combined with a reflection in the discussion on whether there are any differences in the studies – in terms of design or findings – between
those that examine RN/NP roles and those looking at LPNs
c. – ie. Does the grade/qualifications of nursing staff involved have any bearing on the reported effect on outcomes?

Authors’ response to 2.b. and 2.c.:

We have complemented our text with this recommendation in the Discussion section (page 14, line 362):

“It is uncertain to what extent nurses’ educational preparation and type of nurses’ roles influenced the outcome effects. The three trials that reported the nurses’ educational degree showed no significant differences. Although nurses were in NP roles in 16% (4/25) of the outcomes that favored nurse-led care, the studies were of lower methodological quality somehow (lack/unclear random generation and/or allocation concealment and/or #20% attrition and/or small study). Furthermore, nurses were NPs and/or LNs in the 84% (21/25) of the outcomes which showed no significant differences. Although these studies were of variable quality, one trial of somehow higher quality also had a bigger sample (N>3,000).”

3. One aspect of the narrative synthesis presented in the results that I think could usefully, be enhanced, would be to provide a sense of the relative strength/quality of the studies, in the narrative synthesis. Having gone to the trouble of scrutinising the quality in some depth, readers might welcome the benefit of this insight reflected in the prose, to give a means of assessing where the strength of evidence lies, and which are the ‘better quality’ studies that we can have most confidence in. This could then be reflected in the conclusion. Whilst the quality of the studies is mixed and sample sizes generally small (as reflected in the conclusion), a few of the trials are nonetheless reported to have larger sample sizes of both nurses and patients, and to have been of better quality designs.

Authors’ response:

We have made the necessary revisions and added a paragraph describing the study quality based on the effects of interventions in the Results section (page 12, line 304):

“The quality of studies was mixed and sample sizes were generally small. The three trials [20, 22, 23] in which the intervention effects favored nurse-led care were of lower methodological quality (small study (N<200), lack/unclear random generation and allocation concealment and/or blinding, and/or #20% attrition). Among these, only one [22] was superior in quality but used a small patient population. A trial [25] of somehow higher quality (N>3000, better random generation and allocation concealment, <20% attrition, some blinding) also showed no significant differences between groups. Of the remaining trials, four [24, 25, 32, 34] had larger patient populations, better random generation and
allocation concealment, but did not fulfill blinding and/or attrition criteria.”

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

Version: 2 Date: 21 April 2015
Reviewer: Christine M. Duffield

Minor essential revisions
1. It would be useful to indicate what sort of nursing staff are discussed in each article - nurse practitioners, practice nurses, registered nurses etc.

Authors’ response:
This is a similar comment to that one made by another reviewer. We have made the necessary revisions by specifying the category of nurses involved in each study throughout the manuscript and on Table 3.

2. It is unusual to find no studies from the US met the inclusion criteria given the large number of nurse practitioners, clinical nurse specialists and advanced practice nurses they have working there under a fee-for-service model.

Authors’ response:
We were similarly surprised by the small number of studies meeting our inclusion criteria. Although we identified studies from the USA, none of these met our inclusion criteria by failing to report the outcomes of interest for our review. These are listed among other studies, with reasons for exclusion, on the table provided in:

“Additional file 3: Studies excluded based on appraisal of full-text articles.”

3. Abbreviations need to be removed or explained first.

Authors’ response:
We have made the necessary corrections.

Discretionary revisions
4. I may have missed it but was the review restricted to adults or were there paediatric primary care services included?

Authors' response:

Our review was not restricted to adults and included family physicians, pediatricians and/or geriatricians delivering care in primary care. This information can be found on the section Methods/ Study inclusion and exclusion criteria (page 6, line 123):

“Studies were eligible if care from family physicians, pediatricians and/or geriatricians was compared to care delivered by nurses (nurse-led care) in all roles under a task-shifting model of care; for patients of all ages and all conditions; and if studies reported outcome measures related to the course of disease including symptoms, severity and complications.”

Indeed two studies included children within the populations these examined. This can be observed on our Table 1. We have linked this information to our manuscript under Results/Outcomes/Diverse, acute, minor or common complaints (page 11, line 285):

“Both trials included children (Table 1).”

Level of interest: An article whose findings are important to those with closely related research interests.

Quality of written English: Needs some language corrections before being published.

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'.

Version: 2 Date:18 May 2015

Reviewer: Grant R Martsolf

This paper provides a systematic review related to impact of physician-nurse task shifting on the course of chronic conditions in primary care. Many experts believe that growing demand for primary care services will soon outstrip primary care supply. One approach to addresses supply shortages is by supplementing the primary care physician supply with nurse practitioners. This is a very important topic, and it is laudable that the authors attempted to answer this important question. I do have a number of comments that I hope will make this a stronger manuscript.
Major Compulsory Revision

1. My largest overarching concern is that there is not a strong conceptual framework guiding the systematic review. I believe that there are two ways that nurses might supplement the supply of PCPs. First, NPs might function as direct substitutes. Performing similar functions as physicians, managing their own patient panels and in every way functioning in a similar capacity. Second, physicians and NPs can work together as a team wherein PCPs and NPs split duties across a shared patient panel. PCPs for example might manage all complicated cases and NPs more routine cases. I initially thought that the authors were trying to address the latter, but the statement on line 117 where studies were excluded “studies of supplementation” and then the rest of the findings seemed to suggest the latter. The article would benefit from a detailed conceptual framework and definition of the concept of “task shifting” that the authors are attempting to examine. If the authors are referring to the latter concept, the authors should address:

a. Definition of the concept of “task shifting” –

Authors’ response:

We have complemented and made more specific the definition of task-shifting that we had stated in the Background of our manuscript (page 5, line 89):

“A popular approach to overcome this increasing shortage of human resources is task shifting, a process of delegation whereby tasks are moved to less specialized healthcare workers [3]. The strategy aims to efficiently and effectively reorganize the existing healthcare human resources to improve the distribution of workload, increase service capacity and reduce healthcare costs [4, 5]. Physician-nurse task-shifting is carried out by transferring specific functions or tasks traditionally from the domain of physicians to nurses.”

b. What are the various working relationships that PCPs and NPs can have?

Authors’ response:

We have expanded on the explanation for the framework that we followed to differentiate between task-shifting from supplementation under the section Methods/Study inclusion and exclusion criteria (page 6, line 131):

“We focused on a task-shifting approach by differentiating it from supplementation based on the framework from a Cochrane review [10]. Under task-shifting, clearly delineated tasks or functions traditionally from the domain of physicians are transferred to nurses [3]. Nurses may receive specific or competency-based training to perform such tasks/functions and would deliver
consultations with autonomous or delegated responsibility. Studies of task-shifting thus compare the performance between nurses (as main figure of care) and physicians when both manage the same work or tasks in a similar capacity. In a supplementation approach nurses complement the work of physicians or extend the range of services to improve the quality of care. Studies of supplementation compare nurses working alongside other clinicians (multi-professional service) with physicians working alone (uni-professional service). We excluded studies of supplementation.

c. What types of tasks might be shifted from PCPs to NPs?

Authors' response:

As explained above, we have expanded on the explanation for the framework that we followed to differentiate between task-shifting from supplementation and have added the types of tasks that are transferred under task-shifting model of care. See section Methods/Study inclusion and exclusion criteria (page 6, line 132):

“Under task-shifting, clearly delineated tasks or functions traditionally from the domain of physicians are transferred to nurses [3].”

Under Results/Study and population characteristics section, we have added the type of tasks that have been addressed in the studies (page 8, line 190):

“The tasks varied widely from assessment, history taking, preparation, diagnostic, monitoring, prescription and decisions on eligibility for and initiation of treatment, referral, follow-up and secondary prevention.”

d. How might these tasks be shifted?

Authors' response:

As expanded in the section Methods/Study inclusion and exclusion criteria, this approach necessitates clearly outlined tasks and functions as well as well-defined nurses’ roles in order to successfully implement task-shifting (page 6, line 132):

“Under task-shifting, clearly delineated tasks or functions traditionally from the domain of physicians are transferred to nurses [3]. Nurses may receive specific or competency-based training to perform such tasks/functions and would deliver consultations with autonomous or delegated responsibility.”

Once these questions are addressed in a conceptual framework, the authors
could then track their findings to this model instead of simply by condition. If the authors are not referring to this latter concept, they need to be much clearer about what they are trying to examine.

Authors’ response:

Apart from expanding on the framework used to guide our systematic review, we have also specified more closely the type of model which is the focus of our review under the section Methods/Study inclusion and exclusion criteria (page 6, line 124):

“Studies were eligible if care from family physicians, pediatricians and/or geriatricians was compared to care delivered by nurses (nurse-led care) in all roles under a task-shifting model of care;...”

2. I am concerned that the authors limited the studies to randomized controlled trials. There are a number of different types of observational studies that provide very important information if well-designed.

Authors’ response:

As explained in the section for the Strengths and limitations of this systematic review, we included randomized controlled trials (RCTs) only since these are at lower risk of bias than observational studies and allow the estimation of causal effects. RCTs are regarded as the most scientifically rigorous method for hypothesis testing and they are regarded as the gold standard for the evaluation of the effectiveness of interventions. Following the hierarchy of evidence for the effectiveness of interventions/treatment, observational studies would rank below RCTs. We agree that observational studies, if well-implemented, could provide important information, especially when there are gaps in the evidence from RCTs. We have acknowledged this fact in our manuscript under Strengths and limitations of this systematic review (page15, line 388):

“Although observational studies if well implemented could provide important information, we only included RCTs because these are at lower risk of bias and allow the estimation of causal effects.”

3. I am confused about what the authors mean by “nurse-led” care in line 114 and throughout. This relates to #1 above again.

Authors’ response:

In the context of our review, “nurse-led care” refers to care delivered by nurses as the main figure of care for a group of patients which is then compared to care delivered by physicians under a task-shifting model of care. Apart from
expanding on the framework used to guide our review, we have also specified this under Methods/Study inclusion and exclusion criteria (page 6, line 124):

“Studies were eligible if care from family physicians, pediatricians and/or geriatricians was compared to care delivered by nurses (nurse-led care) in all roles under a task-shifting model of care;…”

Minor Essential Revisions

4. It is not clear in the background (and to a lesser extent throughout) what kind of “nurses” (NPs, RNs, LPNs) the authors are referring to. That is clarified more in the methods but this needs to be presented in the background. Basically, what is really the phenomenon that the authors are trying to examine, which is directly related to comment #1.

Authors’ response:

Part of this comment is similar to that one made by another reviewer.

- In the Background section we have revised our statements in keeping with these recommendations regarding the definition of task-shifting, the type of task-shifting which is the focus of our review and the framework that guided our review (page 5, line 89):

“A popular approach to overcome this increasing shortage of human resources is task shifting, a process of delegation whereby tasks are moved to less specialized healthcare workers [3]. The strategy aims to efficiently and effectively reorganize the existing healthcare human resources to improve the distribution of workload, increase service capacity and reduce healthcare costs [4, 5]. Physician-nurse task-shifting is carried out by transferring specific functions or tasks traditionally from the domain of physicians to nurses.”

- As explained in the Methods section, we refer to nurses in all types of roles (page 6, line 123):

“Studies were eligible if care from family physicians, pediatricians and/or geriatricians was compared to care delivered by nurses (nurse-led care) in all roles under a task-shifting model of care; for patients of all ages and all conditions; and if studies reported outcome measures related to the course of disease including symptoms, severity and complications.”

- We have also specified the category of nurses involved in each study throughout the manuscript, the Results section and on Table 3.

5. In the results section, the authors need to be much more specific about what kind of nurses is delivering care.
Authors’ response:

We have specified the category of nurses involved in each study throughout the manuscript, in the Results section and on Table 3.

6. Much of the discussion section is not tied directly to the results of the study. I can sort of infer why the authors are making certain conclusions but they need to be more explicit. The authors cite much previous literature but do not actually mention many of the specific results from the reviewed studies that would support their conclusion, particularly in lines 295-308.

Authors’ response:

We have made the necessary revisions to reflect this recommendation in the Discussion section (page 12-14, lines 328-369).

7. I do not understand the first few sentences of the conclusion at all. It almost seems to be a non-sequitur from the rest of the paper as it starts in by talking about the role of patients in achieving quality of care and then talk about “non-pharmacological” interventions which I think is the first time this concept is introduced. The authors then state that this is why nurses can play an important role in patient care. Are the authors making the argument that nurses tend to use non-pharmacological and patient-centered care? If so, that was a poorly developed in that paragraph.

Authors’ response:

We refer to non-pharmacological interventions in the Discussion section of the manuscript. We have revised our conclusion (page 15, line 398):

“Trained nurses, mostly NPs, appeared to achieve outcomes of at least similar effects as physicians for the management of disease progression in a wide range of patient populations. Structured protocols and validated tools might be some of the main boosters of outcome improvement. The implementation of non-pharmacological and patient-centered care approaches may also lead to successful nurse-led care interventions. A clear definition of roles, qualifications, skills and experience, essential for an effective and safe transfer of tasks and functions, are only reported in low standards. It is therefore unclear to what extent nurses should be involved in task-shifting from physicians. The evidence is also limited by the mixed methodological quality of trials, although a few of the trials have larger patient populations. More good quality studies using validated tools and larger samples from many countries should improve the reporting standards and consistency of nurses’ roles, qualifications and interventions.”
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: No conflicts.