Author’s response to reviews

Title: Protocol: Randomised clinical trial investigating the effectiveness and cost benefit of a lifestyle intervention targeting Type 2 Diabetes in Australia.

Authors:
Linda Cloete (linda.cloete@avondale.edu.au)
Brett Mitchell (brett.mitchell@avondale.edu.au)
Darren Morton (darren.morton@avondale.edu.au)

Version: 2 Date: 14 Jan 2019

Author’s response to reviews:

1 The report describes a RCT testing the CHIP lifestyle intervention. Introduction page 4, paragraph 2. It is good to mention blood pressure in this list of cardio-metabolic risk factors as well. Now it seems to be overlooked but it is measured in your RCT.

Inserted pg 4 paragraph 2

2 AIMS
The main aim is to look at fasting glucose, but how will you take into account changes in treatment (medication use, change in type or dosage) and have you considered to include HbA1c on top of looking at fasting glucose?

Agreed, the main aim is to look at fasting blood sugar as this is the main diagnostic criteria still used in NSW Australia.
In addressing the questions that refer to the Aim, question 1 covers HbA1C assessment. Although mentioned later under data collection medication use is assessed at all assessment intervals. I have now included medication use at this point for clarity.(Line 133)

3 To determine the cost-benefit, it may be important to also have detailed information on the effectuated intervention and do some formal process evaluation. If the effect lags behind because the intervention could not be delivered properly regarding intensity, attrition, logistics or other failure of delivery, this is important to take into account.

Furthermore, it may be wise to monitor what the control do, some take action themselves to improve lifestyle.

Agreed, the main aim is to look at fasting blood sugar as this is the main diagnostic criteria still used in NSW Australia.
In addressing the questions that refer to the Aim, question 1 covers HbA1C assessment. Although mentioned later under data collection medication use is assessed at all assessment intervals. I have now included medication use at this point for clarity.(Line 133)

We agree that there may be a lag effect for the intervention, with respect to the main outcomes(s), thereby affecting cost-benefit. A full cost-effectiveness analysis could be undertaken, which would incorporate both discounting and an lag effect. For the purpose of this study, we simply what to examine costs/benefits in the short term.

The control participants also get assessed at all assessment intervals. Part of that assessment is lifestyle orientated so that an understanding of what the control participants are engaged with is obtained (see line 277)

4Question 2, levels of compliance, will you also assess self-reported reasons for dropout and specifically dropout due to medication use (side effects of statins, difficulty controlling low glucose when doing sports).

Yes, self-reported reasons for drop out is discussed line 265

5 Question 3, what is your exact outcome for the cost-effectiveness? Is it fasting glucose?

Outcomes for cost benefit will be all medical and program costs accrued during the period of the study. Formula discussed lines 307-316. Please note that we are not undertaking cost-effectiveness analysis.

6 Page 7, study setting. Can you describe the collaboration with the GP?

The only GP involvement is willingness to refer. Have included that in line 158

7 Page 7, exclusion criteria. Will you monitor how many do not apply to your in/exclusion criteria? To describe this source population would be very important to estimate a 'budget impact analysis'. The main question then is 'what percentage of diabetes patients will be suitable to join the program (successfully)?'

The current relationship and involvement of the GP’s largely prohibits this sort of data collection. Because of privacy laws in Australia, the GP needs to be the point of contact. They will then refer patients they feel are suitable which essentially meet the inclusion criteria. As a researcher, I have no direct contact with any person who is not directly referred.

8 Page 10, randomization. Will you randomize per practice or per person?

Please see line 185 – individual level

Page 10, interventions. By whom is the intervention delivered? This is a major issue in this field. When it needs to be implemented by the nurse practitioner, it seem to be less effective (now recently shown for a large German study in limiting weigh gain during pregnancy) than when delivered by someone who is specialized (and properly educated) in diet and exercise. Also page 12, lines 258-261: by whom is the intervention delivered?
Medical content is delivered by lifestyle medicine professionals
Group activities, cooking demonstrations undertaken by CHIP trained volunteers. Please see Lines 242-244 now inserted

9 It would be good to check what information you collect, to be able to conclude the results from three points of view:
(1) how effective was the intervention (if not, was this due to non-response to a well delivered program?)
(2) how well could the intervention be delivered (if not, why was this not optimal and is there room for improvement) and
(3) how good was the compliance (determinants at patient level). Also realize that we sometimes tend to have people who drop out because they got the hang of it and can continue themselves without the hassle of a health professional visit and so on. On the other hand, typical in such a condensed intervention period, people need more time to change their ideas about lifestyle. The large RCT's to prevent diabetes (DPS, DPP, Da Qing) were set up very differently, all with a basic program of at least two years, giving people time to go through all the 'stages of change' that are needed for behavior change. Will you monitor their readiness or motivation to change?

Survey and anthropometric data will determine changes in outcomes and provide a measure of compliance or at least measure of change in habits.
The intervention is standardized with very little room for poor delivery. The process will be supervised by the researcher to ensure quality is maintained.
Lifestyle measures are assessed in both groups at assessment intervals and will be good indicators of compliance (line273-279)

Previous studies done on CHIP program have shown significant alterations in fasting glucose and lipogram results at 12 weeks which have remained better than pre-intervention measurements at 5 years post intervention.
Admittedly these participants elected to do the programme and were therefore likely motivated to change, however all participants entering this study are consenting and therefore by default show some motivational interest.

10 Page 12, data collection. It is not specified with which method information on lifestyle will be collected. It is also not described how the endpoint will be standardized. This is essential information.

Agreed. We have removed the term lifestyle for improved clarity and listed the specific endpoints.

11 Page 13, sample size estimate. Line 283 0.5 should probably be 0.05?
And what SD was used for the calculations?

Thanks – corrected

Data from previous studies very varied in degree change and SD (7.5- 44) Took a SD of 20. Included in text
12 Page 13, lines 287-288. Have you considered using an eCRF, electronic Clinical Research Form software?

Would be useful if data could be collected electronically, however I expect that the demographic of patient I will be using will still prefer paper based surveys.
I would also require extra funding for this.

13. Page 13, lines 294: with these low numbers visual inspection of normality is also important. You may lack the power to prove a lack of normality.

Agreed – will look at clinical significance in discussion of results

14 Page 16. Limitations, To learn about compliance and uptake of the program, I can really recommend to have focus groups with participants and separately also with professionals involved. This will be a rich source of information to support and interpret your findings and improve implementation.

This data is obtained at monthly follow ups and assessment intervals