Principles and strategies for improving the prevention of cardio-metabolic diseases in indigenous populations: An international Delphi study

Lee Stoner [a,b,c,*], Anna G. Matheson [a], Lane G. Perry [d], Michelle A. Williams [e], Alexandra McManus [f], Maureen Holdaway [g], Lyn Dimer [h], Jennie R. Joe [i], Andrew Maiorana [h,j]

[a] School of Public Health, Massey University, Wellington 6140, New Zealand
[b] School of Sport and Exercise, Massey University, Wellington 6140, New Zealand
[c] Department of Exercise and Sport Science, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27599, USA
[d] Center for Service Learning & Department of Human Services, Western Carolina University, Cullowhee 28723, USA
[e] Harvard T.H. Chan School of Public Health, Harvard University, Boston, MA 02115, USA
[f] Faculty of Health Sciences, Curtin University, Bentley 6102, Australia
[g] Research Centre for Maori Health and Development, Massey University, Palmerston North 442, New Zealand
[h] School of Physiotherapy and Exercise Science, Curtin University, Bentley 6102, Australia
[i] Department of Family and Community Medicine, University of Arizona, Tuscon, AZ 85719, USA
[j] Department of Allied Health, Fiona Stanley Hospital, Murdoch 6150, Australia

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ABSTRACT

The disparity in life expectancy between Indigenous and non-Indigenous populations, including within high-income countries, is driven by a heightened risk of cardio-metabolic diseases. The current study recruited independent panels of experts in Indigenous cardio-metabolic health from Australia, New Zealand and the United States, in order to establish local consensus opinion and initiate dialogue on appropriate prevention strategies. Therefore, a three-round Delphi process was used to consolidate and compare the opinions of 60 experts, 20 from each country. Round one, the experts were asked twelve open-ended questions across six domains: (i) prevention; (ii) consultation; (iii) educational resources; (iv) societal issues; (v) workforce issues; (vi) culture and family. Round two, the experts completed a structured questionnaire based on results from the first round, in which they ranked items according to their importance. Final round, the experts were asked to re-rank the same items after receiving summary feedback about the rank ordering from the previous round. Several themes emerged common to all three countries: (i) socio-economic and education inequalities should be addressed; (ii) educational, behaviour change and prevention strategies should address physical environmental determinants and be responsive to the local context, including being culturally appropriate; and (iii) cultural appropriateness can be achieved through consultation with Indigenous communities, cultural competency training, use of Indigenous health workers, and use of appropriate role models. These findings highlight several key priorities that can be used to initiate dialogue on appropriate prevention strategies. Such strategies should be contextualized to the local Indigenous populations.

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1. Introduction

The almost 400 million Indigenous people inhabiting 70 countries are not monolithic, with significant variation between and within Indigenous populations in terms of worldview, environmental, and socio-cultural factors (State of the world's indigenous populations, 2010). However, many Indigenous populations are united by a common observation: a discrepancy in life expectancy when compared to their non-Indigenous compatriots (AIHW, 2011; IHS, 2006; SNZ, 2008). This disparity exists even within high-income countries such as Australia (AU), (AIHW, 2011) New Zealand (NZ) (SNZ, 2008) and the United States (US), (IHS, 2006) and is being driven by a heightened risk of cardio-metabolic diseases (ABS, 2006; Huffman and Galloway, 2010; MOH, 2007).

With regards to strategies for preventing Indigenous cardio-metabolic diseases, there is a lack of consensus among influential stakeholders (e.g., academics, policy makers, public health practitioners, health workers), which may lead to some strategies being weaker or less effective (Gibson et al., 2015; McMurray and Param, 2008; Paul et

al., 2010; Stoner et al., 2015; Voyle and Simmons, 1999). The lack of consensus may be attributable to several factors. Firstly, the poor health status of Indigenous populations is caused by a complex combination of determinants including historical, institutional, socio-cultural, economic, environmental and lifestyle-related factors, as well as access to healthcare (Gracey and King, 2009; King et al., 2009; WHO, 1986). Secondly, while common inequities are evident across Indigenous populations from different countries, there are some determinants unique to specific Indigenous populations. Lastly, there is a paucity of large-scale, methodologically rigorous interventions designed to improve indigenous health outcomes (Paul et al., 2010), and, as such, there is a limited evidence base to guide the creation and prioritization of effective prevention strategies.

Multi-level strategies are needed to adequately address the complex interplay between the determinants of Indigenous cardio-metabolic health (Paul et al., 2010). However, there is little consensus as to which strategies should be prioritized. Therefore, the purpose of the current study was to survey influential stakeholders (academics, policy makers, public health practitioners, health workers) from AU, NZ and the US using the Delphi technique. The Delphi technique was originally developed to bring clarity to a complex area in need of structure (Hsu and Sanford, 2007), and for this study was used to establish local consensus opinion and initiate dialogue on appropriate strategies for preventing cardio-metabolic diseases.

2. Methods

2.1. Study design

A three-round Delphi study was used to transform the opinions of a panel of anonymous experts into group consensus (Dalkey, 1969). To ensure a comprehensive perspective of potential historical, institutional, environmental, socio-cultural, economic, lifestyle and health service determinants of cardio-metabolic health, the panelists were asked 12 questions across six domains related to cardio-metabolic disease prevention in Indigenous people: (i) improving prevention; (ii) Indigenous community consultation; (iii) educational resources; (iv) societal issues; (v) workforce; (vi) the role of Indigenous culture and family. For

each round, the panelists were emailed a country-specific hyperlink to complete a web-based (Qualtrics, Utah, US) questionnaire. Panelists were given three weeks to complete each round, and were emailed a reminder on weeks two and three. Three weeks were allocated for analysis between rounds. Approval was obtained from the ethics committees of Massey University in NZ (MUHECN 14/052), Western Carolina University in the US (2015-0132), and Curtin University in AU (HR39/2015). The AU panelists completed an online consent form prior to participation, whereas for the NZ and US panelists, consent to participate in the Delphi survey was implied by completion of the questionnaire.

2.2. The Delphi Technique

The Delphi Technique (Fig. 1) is characterized by three features: anonymity; iterative and controlled feedback; and aggregation of responses. Anonymity reduces the effects of dominant individuals, a limitation of other group-based processes (Delbecq et al., 1986). For each round of questions the responses are summarized and controlled feedback provided to the experts before completing the subsequent questionnaire. This 'questionnaire–feedback' process encourages the panel to become more problem-solving oriented, minimizes noise, and is repeated until consensus has been obtained (Hsu and Sanford, 2007). For the purpose of the current study, consensus was defined as all three panels (AU, NZ, US) prioritizing an item. A priori a three round Delphi was opted; while up to six rounds of questionnaires have been employed, we believed that additional rounds would likely glean minimal additional information and increase the likelihood of panelist attrition (Wilson et al., 2003).

2.3. Expert panel

Experts were recruited from a range of disciplines to provide a wide breadth of perspectives from influential stakeholders. For inclusion on the panel, participants were required to meet at least two out of the following four criteria: (i) published in Indigenous health; (ii) extensive practical experience in Indigenous health; (iii) demonstrated professional interest in Indigenous health; and (iv) considerable experience in Indigenous health management. An initial list of approximately fifty
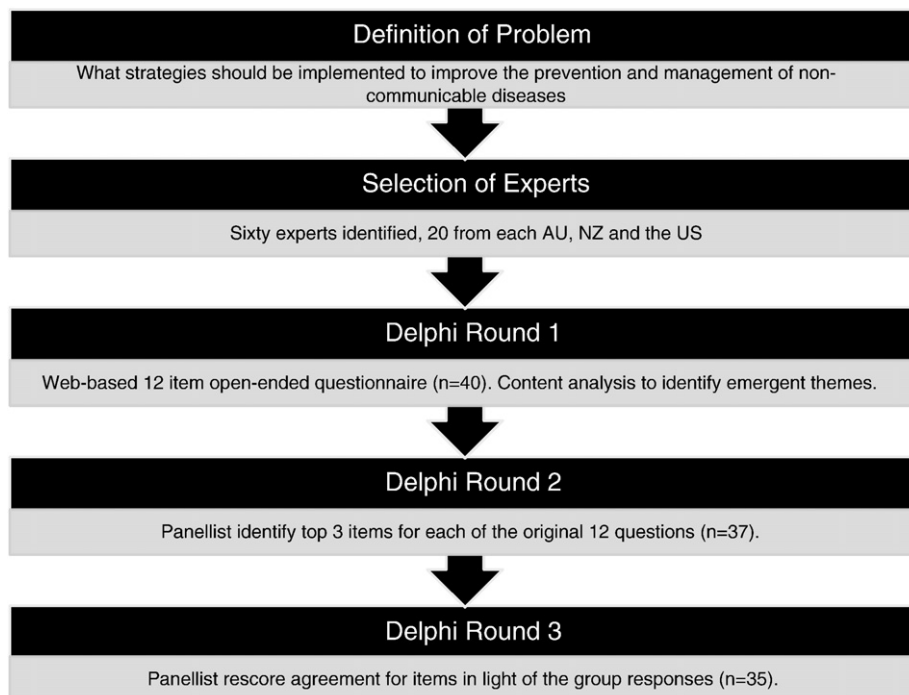

Definition of Problem
What strategies should be implemented to improve the prevention and management of non-communicable diseases

Selection of Experts
Sixty experts identified, 20 from each AU, NZ and the US

Delphi Round 1
Web-based 12 item open-ended questionnaire (n=40). Content analysis to identify emergent themes.

Delphi Round 2
Panellist identify top 3 items for each of the original 12 questions (n=37).

Delphi Round 3
Panellist rescore agreement for items in light of the group responses (n=35).

Fig. 1. Outline of the Delphi process.