

Supplementary Material

***Ngu-ng-gi-la-nha* (to exchange) knowledge. How is Aboriginal and Torres Strait Islander people’s empowerment being upheld and reported in smoking cessation interventions during pregnancy: a systematic review**

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Review Methods

Identification of studies

Electronic searches

Electronic databases were searched for interventions up to the 11th of April 2018. Databases included were: Medline; EMBASE; CINAHL; informit health collection; informit Indigenous collection, Health/InfoNet, Lowitja Institute Lit.search, Austhealth using MESH and string terms:

Medline:

Smoking OR Smoke OR Smoking Cessation OR "TOBACCO USE CESSATION" OR TOBACCO AND Australia OR Oceanic Ancestry Group OR torres strait islander.mp. OR Indigen*.mp. AND intervention.mp. OR Prospective Studies OR experimental studies.mp. OR random*.tw. OR trial.tw. OR groups.tw. AND Pregnant Women OR Pregnancy OR Pregnancy in Adolescence OR Prenatal Care OR pregnan*.mp. OR prenatal.mp. OR antenatal.mp. OR maternal.mp. OR maternity.mp.

EMBASE:

Tobacco OR smoking cessation OR cigarette smoking OR smoking OR tobacco dependence OR smok*.mp. AND indigenous people OR Indig*.mp. OR Australia OR Aborigine OR aborigin*.mp. OR Torres Strait Islander OR oceanic ancestry.mp. AND community OR communit*.mp. OR intervention study OR prospective study OR experimental study OR trial.tw. OR random*.tw. OR groups.tw. AND pregnant woman OR pregnancy OR adolescent pregnancy OR prenatal care OR pregnan*.mp. OR prenatal.mp. OR antenatal.mp. OR maternal smoking OR maternity.mp.

CINAHL:

pregnant women OR pregnant adolescents OR (pregnancy or pregnant) OR prenatal care OR prenatal OR antenatal OR maternal OR maternity AND community OR intervention OR prospective study OR experimental study OR randomized controlled trial , rct , "hci", intervention OR (trial or study) OR random OR group AND indigenous peoples OR indigenous australians OR indigenous women OR aboriginal OR torres strait islander OR oceanic ancestry group AND smoking OR smoking cessation OR smoking cessation interventions OR smoking during pregnancy OR tobacco

Informit indigenous: (smok* OR cessation OR tobacco) AND pregnan*

Informit health and AUSTHealth: (smok* OR cessation OR tobacco) AND pregnan*
Aboriginal OR Indig* OR Torres Strait Island*

Australian Indigenous Healthinfonet: Preventing Aboriginal and Torres Strait Islander Maternal Smoking- publications- smoking prevention and cessation exported all publications.

Lit.search (Lowitja)

Search keywords “smoking pregnancy” (((((australia[mh] OR australia*[tiab]) AND (oceanic ancestry group[mh] OR aborigin*[tiab] OR indigenous[tw])) OR (torres strait* islander*[tiab])) AND medline[sb]) OR (((au[ad] OR australia*[ad] OR australia*[tiab] OR northern territory[tiab] OR northern territory[ad] OR tasmania[tiab] OR tasmania[ad] OR new south wales[tiab] OR new south wales[ad] OR victoria[tiab] OR victoria[ad] OR queensland[tiab] OR queensland[ad]) AND (aborigin*[tiab] OR indigenous[tiab])) OR (torres strait* islander*[tiab])) NOT medline[sb]) AND English[la]) AND (smoking pregnancy)

Results from each search were exported into Endnote reference library and duplicates were removed manually. A manual duplicate screening was then conducted in Endnote. To seek any in progress papers author MB contacted speakers from the 2017 Oceania Tobacco Control Conference who presented in the “pregnancy and cessation” plenary to seek manuscripts or developed reports on recent interventions.

Titles and abstracts were independently screened by two researchers (MB & YBZ) for relevant interventions, with discrepancies settled through discussion. The full text of potentially relevant studies were assessed by MB, with 50% checked by YBZ. Excluded manuscripts are listed in Supplementary File 2. Once included studies were identified MB contacted each primary author and sought any additional reports, articles and presentations that might contain relevant information on Aboriginal community involvement or the research practice.

Data extraction and management

A data extraction tool was developed in Microsoft Excel that combined use of the *Individual empowerment* domains and the “Cultural Identity Interventions Systematic Review Proforma” (MacLean et al. 2015) to articulate *community empowerment* domains. The tool was piloted by MB and reviewed by a CC for consistency. Data was extracted by MB and checked by CC, both Aboriginal authors.

Assessment of risk of bias in included studies

Two reviewers (MB, CC) assessed the quality of the included interventions methodology using the Cochrane Risk of Bias Tool (Supplementary File 3). Risk of bias was categorized as high risk, unclear or low risk: a rationale was recorded for each decision.

Figure S1. PRISMA Flow Diagram

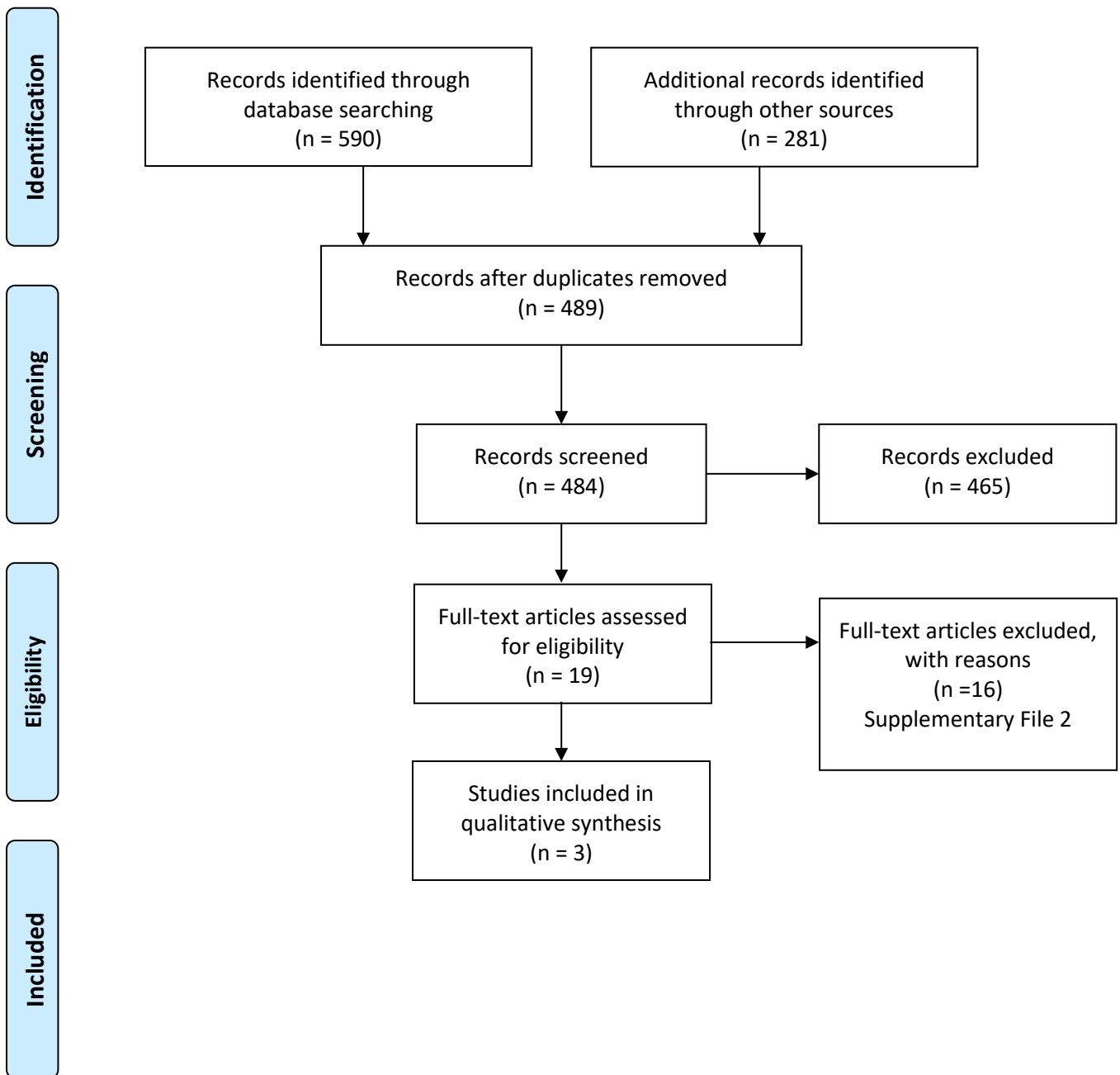


Table S1. Excluded manuscripts

Authors	Year	Title	Details of intervention	Reason for exclusion	Follow up
Ahmat, D et al	2012	Stop the smokes for a healthy bub: Addressing smoking in pregnant aboriginal and torres strait islander women	No specified	Reference was a conference abstract.	Contacted Research Officer at Wuchopperen Aboriginal Medical Service who requested details of potential manuscripts from Ahmat. Cancer Council Queensland conducted the evaluation. However no evaluation report could be found.
Aboriginal Health Council of South Australia	2016	Tackling smoking: standing together to raise awareness and support tackling smoking initiatives within our community.	'Stickin It Up The Smokes Black Proud Free Sistas' social media campaign.	Only a 2 page overview of the intervention is included in the report. Details of the intervention, development or evaluation are not described.	Project officer was contact seeking any reports or evaluations on the project, none were available.
Reeve, C et al	2016	Community outreach midwifery-led model improves antenatal access in a disadvantaged population	A retrospective 2 year evaluation of antenatal care	No smoking cessation interventions were described or evaluated	N/A
Donovan, J	1996	Randomised controlled trial of anti-smoking advice in pregnancy: 20 years on	Comment on historical article	No intervention described	N/A
Eades, S	2013	An intensive smoking intervention for pregnant Aboriginal and Torres Strait Islander women: a randomised controlled trial	randomised controlled trial brief intervention	This was a response to a letter to the editor	N/A
Gibson-Helm, M et al	2015	A continuous quality improvement initiative: Improving the provision of pregnancy care for Aboriginal and Torres Strait Islander Women	Longitudinal analysis of 2220 pregnancy care records from 50 PHCs involved in up to four cycles of CQI in Australia between 2007 and 2012.	No description of smoking cessation intervention was described	N/A
Gibson et al	2016	Improving the provision of pregnancy care for Aboriginal and Torres Strait Islander women: A continuous quality improvement initiative	Longitudinal analysis of 2220 pregnancy care records from 50 PHCs involved in up to four cycles of CQI in Australia between 2007 and 2012.	This was a duplicate reference	N/A
Gould, G et al	2016	Guidance for Culturally Competent Approaches to Smoking Cessation for Aboriginal and Torres Strait Islander Pregnant Women	No intervention described	This is a guide for care not an intervention	N/A
Gould G et al	2013	An intensive smoking intervention for pregnant Aboriginal and Torres Strait Islander women: a randomised controlled trial	No intervention described	This was a letter to the editor	N/A

Table S1. Excluded manuscripts

NSW Ministry of Health	2018	QFNL evaluation summary report	<p>i) Given brief advice</p> <p>ii) Offered a referral to Quitline</p> <p>iii) Assessed and offered nicotine replacement therapy (NRT) if appropriate</p> <p>iv) Offered intensive follow-up support</p>	This was a summary of findings: implementation, acceptability, reach, uptake, impact. No description of intervention or development are described.	Email sent to QFNL. Advised evaluation will not be complete until the end of 2018.
Wyndow, P et al	2018	A Novel Approach to Transforming Smoking Cessation Practice for Pregnant Aboriginal Women and Girls Living in the Pilbara	No description of intervention offered	This is a paper describing the rationale underpinning formative research which will inform smoking cessation program for Aboriginal women in the Pilbra region of WA	N/A
Bar Zeev, Y et al	2015	Indigenous Counselling And Nicotine (ICAN) quit in pregnancy-developing an evidence-based intervention for smoking cessation for indigenous pregnant women	Multi-component intervention using ABCD (Ask, Brief intervention, Cessation, and Discuss the psychosocial context), and recommends the expedited use of nicotine replacement therapy.	This was a conference abstract. The protocol for this study was already included in the analysis.	N/A
Askew, D et al	2017	Empowering Strong Families: A Smoking Cessation Program for Pregnant Aboriginal and Torres Strait Islander Women and their Community	The overarching goal is to contribute to positive change in smoking attitudes and behaviours amongst Inala Aboriginal and Torres Strait Islander peoples through a holistic and ecological approach.	This was a research poster.	Contacted the research team and advised protocol and outcomes papers were not yet published and not yet available for inclusion.

Table S2. Risk of bias – Cochrane

<i>Eades, S. An intensive smoking intervention for pregnant Aboriginal and Torres Strait Islander Women: a randomized controlled trial</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (<i>selection bias</i>)	Low risk	Randomisation was by week of clinic attendance. An Excel computer program was used to randomly allocate weeks to intervention or control for all clinics.
Allocation concealment (<i>selection bias</i>)	High risk	Author notes lack of allocation concealment a methodological limitation of the study, which may account for unequal allocation in study arms.
Blinding of participants and personnel (<i>performance bias</i>)	High risk	Participants were informed of the purpose of the study at recruitment but not of their allocated treatment group until after they had provided consent. At the beginning of each week, clinics were notified of the allocation sequence and the research assistant flagged the clinical record of study participants to indicate whether they were allocated to the usual care or intervention group.
Blinding of outcome assessment (<i>detection bias</i>)	Unclear	Outcome assessor blinding not reported.
Incomplete outcome data (<i>attrition bias</i>)	Low risk	High rates of attrition (C= 37/115, I = 50/148) at end of pregnancy (reasons not reported). Very high attrition at 6 months postpartum. ITT analysis. Women lost to follow-up or with smoking status were classified as current smokers.
Selective reporting (<i>reporting bias</i>)	Unclear	No registered protocol for the study reported. 6 month postpartum outcomes not reported due to high attrition.
Other sources of bias	High risk	Unequal numbers in each group with greater allocation to intervention group.
<i>Passey, M. Evaluation of 'Stop Smoking in its Tracks': an intensive smoking cessation program for pregnant Aboriginal women incorporating contingency-based financial rewards</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (<i>selection bias</i>)	High risk	No randomisation due to a service having to drop out of the study.

Table S2. Risk of bias – Cochrane

Allocation concealment (<i>selection bias</i>)	High risk	All services received the intervention no blinding needed.
Blinding of participants and personnel (<i>performance bias</i>)	High risk	No blinding used
Blinding of outcome assessment (<i>detection bias</i>)	Unclear	Outcome assessor blinding not reported.
Incomplete outcome data (<i>attrition bias</i>)	Low risk	Only 2 women lost to follow up
Selective reporting (<i>reporting bias</i>)	Unclear	No registered protocol for the study reported. All expected outcomes are reported in the methods are reported as planned.
Other sources of bias		
<i>Bar Zeev, Y The Indigenous Counselling and Nicotine (ICAN) QUIT in Pregnancy Pilot Study protocol: a feasibility step-wedge cluster randomized trial to improve health providers' management of smoking during pregnancy.</i>		
Bias	Authors' judgement	Support for judgement
Random sequence generation (<i>selection bias</i>)	Low risk	This is a step-wedge cluster randomised pilot study. Allocation of the sites to the clusters is based on geographical convenience. For each cluster, the period of treatment crossover was randomised using simple randomisation.
Allocation concealment (<i>selection bias</i>)	High risk	Protocol states allocation concealment was not possible. All of the sites will receive the same intervention which will be sequentially delivered 1 months following commencement of the study, staggered by 1 month between clusters.
Blinding of participants and personnel (<i>performance bias</i>)	High risk	Health Providers are aware of when the intervention starts as it commences with training and offering of resources. No explanation is offered if the women are aware of allocation at recruited.
Blinding of outcome assessment (<i>detection bias</i>)	Unclear	Outcome assessor blinding not reported.
Incomplete outcome data	N/A	Incomplete data as this is a protocol paper.

Table S2. Risk of bias – Cochrane

(attrition bias)

Selective reporting
(reporting bias)

Unclear

This is the registered protocol.

Other sources of bias

Table S3. Included interventions

Author	Name of study	Intervention Components	Design	Location	Outcomes	Timeframe	Individual Empowerment	Community Empowerment
Eades 2012 (Primary Source) Gilligan 2008 (Secondary Source)	<i>An intensive smoking cessation intervention for pregnant Aboriginal and Torres Strait Islander women: a randomized control trial</i>	<ul style="list-style-type: none"> - HP training - Protocol to follow - NRT support if unsuccessful quitting twice - Ongoing psychosocial support 	Randomised control trial	3 Aboriginal Medical Services; Qld WA	None significant quit rates (RR or intervention versus usual care, 0.93 [95% CI 0.86-1.08]; P=0.212)	June 2005 and December 2009	<ul style="list-style-type: none"> • Considered smoking entrenched in social disadvantage, stress as a major reason for smoking. • Evidence GP are most persuasive to give antenatal advice • 70% of women made a quit attempt when asked by the GP • 68% reported a desire to quit and belief in ability to succeed • Women had a choice to quit • Advice and educational resources offered • Motivational interview used with an empathetic approach • Permission was sought to send a letter to women's house hold to inform them of the women's quit attempt and way they can support the woman. • NRT considered if unable to quit 	<ul style="list-style-type: none"> • Aboriginal ethics obtained • Staff received smoking cessation care • Staff received training in research • Staff welcomed the opportunity to trial and intervention aimed at reducing maternal smoking • Staff members assisted in ensuring that appropriate language was used in all study materials. • Artworks developed by staff members at each site to act as logos. • A competition was run amongst staff to establish a unique name for the study at each site.
Passey 2018 (Primary & Secondary Source)	<i>Stop Smoking in its Tracks</i>	<ul style="list-style-type: none"> - HP training - Free NRT if unsuccessful quitting twice - Financial rewards for CO validated abstinence - Fortnightly peer support groups (not all sites) 	Implemented program	3 rural Aboriginal Maternal and Infant Health Services NSW	Abstinent in late pregnancy 64% vs 12.5%, P=0.026	June 2010 and May 2012	<ul style="list-style-type: none"> • Smoking is a risk factor for adverse pregnancy outcomes • Motivational approach used • Followed 5 A's (ask, advise, assess, assist and arrange follow up) • NRT considered if unable to quit • High levels of stress influencing continued smoking, role of tobacco and value of family and children in motivating women • Evidence for effectiveness of financial rewards • 84% women made self reported quit, 58% were validated • 42% were abstinent in late pregnancy 	<ul style="list-style-type: none"> • Aboriginal ethics obtained • Aboriginal researchers • Community reference group (CRG) of Aboriginal women, midwives and Aboriginal health workers guided the project • Aboriginal research led qualitative research asking women what they want before the intervention was designed • Local service approached Passey requesting maternal smoking cessation supports Bunjalung Local Elders Council and Ngayundi Health Council (LHD) council were consulted with ideas and had input. • CRG advised on all aspects of the project including preliminary research, quitting program development, recruitment of

Table S3. Included interventions

							<ul style="list-style-type: none"> • Most women made multiple quit attempts before successfully quitting • Women had the choice to quit and offered educational resources • HP emphasised their belief in the woman's ability to quit and teams willingness to support the woman to do so. • One site did peer group sessions including relations exercises, educational session and group activity. 	<p>services and women, data collection, and interpretation of findings.</p> <ul style="list-style-type: none"> • Staff received 2 day training program in smoking cessation care • Feedback to the community went through the CRG to then take back to community and elders groups • 2 reports were written and sent back to the community through the reference group • Qualitative interviews were conducted with women and staff to measure the value of the program
<p>Bar Zeev 2017 (Primary Source)</p> <p>Gould 2017 Bovill 2017 Bar Zeev 2017 (Secondary Source)</p>	<p>Indigenous Counselling and Nicotine (ICAN) QUIT in Pregnancy</p>	<ul style="list-style-type: none"> – HP training (webinar) – Free NRT – Educational resources – Audit and feedback 	<p>Step-wedge cluster randomized control trial</p>	<p>6 Aboriginal Medical Services; urban and regional sites NSW, SA and Qld</p>	<p>Not reported- protocol paper</p>	<p>November 2016- September 2017</p>	<ul style="list-style-type: none"> • Smoking has been identified as an important contributor to the health and life expectancy gaps between Indigenous and non-Indigenous Australians. • Combination of behavior counselling and pharmacotherapy most effective. • Proactive approach (ABCD) • FREE oral NRT and educational resources • 	<ul style="list-style-type: none"> • Aboriginal ethics obtained • Stakeholder and Community Aboriginal Advisory Panel (SCAAP) formed to develop the study • Working party co-designed resources • SCAAP to oversee the implementation of the study

Table S4. Reporting of community empowerment through Aboriginal involvement in research

	Eades 2012	Eades Secondary source	Passey 2018	Passey Secondary source	Bar Zeev 2018	Bar Zeev Secondary Source
Aboriginal ethics	√	√	√	√	√	√
Aboriginal researchers			√	√	√	√
Relationship of researchers to participants						
Community involvement with the research question development						
Community involvement with the study design				√		√
What Training and capacity building was included?	√	√	√	√	√	√
Was the capacity building a skill or benefit needed by community?		√		√		√
Was there a resource developed that promoted involvement?						
Feedback process with community during the study				√	√	√
Community involvement in implementation of the study						
How else was community involved?						
Was the research reported back to community?				√	√	√
What went back to community?						
Was the research reported in an appropriate language to the community?						
Use of visual resource?						
Did the interpretation of the results include local Indigenous knowledge?						
How valuable was the research to the participants?			√			
How valuable was the research to the community?			√			
How was the research value measured?			√		√	