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# BMJ Open

## Systematic review of Indigenous cultural safety training interventions for health care professionals

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-073320
Article Type:	Original research
Date Submitted by the Author:	06-Mar-2023
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Keywords:	EDUCATION & TRAINING (see Medical Education & Training), Health Equity, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Systematic Review

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4 1 **Systematic review of Indigenous Cultural Safety training interventions for**  
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6 2 **health care professionals**  
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22 **KEYWORDS**

23 Indigenous health, Education & Training, Health Equity, Health Policy, Quality in Health

24 Care

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26 **WORDCOUNT** 4664

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4 31 **ABSTRACT**

5  
6 32 Objective: To synthesize and appraise the design and impact of peer-reviewed  
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9 33 and published evaluations of Indigenous cultural safety training  
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11 34 programs and workshops for health care workers in what is now  
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14 35 known as Australia, Canada, New Zealand, and/or the United States  
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17 36 of America.

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19 37 Design: Systematic Review

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22 38 Data Sources: Ovid Medline, Embase, PsycINFO, CINAHL, Cochrane Central  
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24 39 Register of Controlled Trials, Cochrane Database of Systematic  
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27 40 Reviews, Bibliography of Indigenous People in North American,  
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29  
30 41 Applied Social Sciences Index & Abstracts, ERIC (Education  
31  
32 42 Resources Information Center), International Bibliography of the  
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35 43 Social Sciences, ProQuest Dissertations & Theses Global,  
36  
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38 44 Sociological Abstracts, and Web of Science's Social Sciences  
39  
40 45 Citation Index and Science Citation Index from January 1, 2006 to  
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43 46 May 12, 2022.

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45 47 Eligibility Criteria: Included studies that evaluated the outcomes of educational  
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48 48 interventions designed to improve cultural safety, cultural  
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51 49 competency, and/or cultural awareness for non-Indigenous adult  
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53 50 health care professionals. Interventions must have taken place in

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4 51 what is now known as Canada, Australia, New Zealand, or the United  
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6 52 States of America.  
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9 53 **Review Methods:** In consultation with our partners at the Southwest Ontario Aboriginal  
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11 54 Health Access Centre, a data extraction tool was developed to  
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14 55 abstract information on the studies' methods, population, sampling  
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16 56 and recruitment, educational intervention design, and outcomes. The  
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19 57 Well Living House Critical Appraisal Tool was then used  
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21  
22 58 independently by two authors to appraise the rigor, internal validity,  
23  
24 59 strength of evidence, and involvement of Indigenous communities in  
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27 60 each study. An iterative narrative approach was used to synthesize  
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30 61 our results.

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32 62 **Results:** 2,442 unique titles and abstracts were identified and screened for  
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35 63 inclusion. Of these, 13 met the inclusion criteria and passed the  
36  
37 64 quality appraisal threshold. Study designs, intervention  
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40 65 characteristics, and outcome measures were heterogenous. Most  
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42  
43 66 studies (n=9) used mixed methods, two used qualitative methods,  
44  
45 67 and two used quantitative methods with sample sizes ranging from 6  
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47  
48 68 to 621. Training participants included nurses, family practice  
49  
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51 69 residents, specialized practitioners (e.g., speech pathologists) and  
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54 70 providers serving specific health service user populations (e.g.,  
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56 71 psychiatric care). Course content was similar across programs.

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4 72 Theoretical frameworks and pedagogical approaches varied. Study  
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6 73 outcomes were almost entirely learner-focused (n=10), and  
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9 74 commonly examined self-reported changes in knowledge,  
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11 75 awareness, beliefs, attitudes, and/or the confidence and skills to  
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14 76 provide care for Indigenous peoples. The involvement of local  
15  
16 77 Indigenous communities in the development, implementation, and  
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19 78 evaluation of the interventions was limited overall.

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22 79 **Conclusions:** There is minimal evidence regarding the effectiveness of specific  
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24 80 content and approaches to cultural safety training on improving non-  
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26  
27 81 Indigenous health professionals' knowledge and skills in caring for  
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29  
30 82 Indigenous patients. Future research is needed that advances the  
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32 83 methodological rigour of training evaluations and is better aligned to  
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35 84 local, regional, and/or national Indigenous priorities and needs.  
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40 86 **SYSTEMATIC REVIEW REGISTRATION** Not Applicable  
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45 88 **WHAT IS ALREADY KNOWN ON THIS TOPIC** The approach, content, and  
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48 89 evaluations of existing cultural competency trainings vary widely. It is unclear which  
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51 90 training approaches and strategies are most effective, especially with respect to  
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54 91 improving disparities in clinical outcomes.  
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6 93 **WHAT THIS STUDY ADDS** Evaluations of cultural competency trainings  
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8  
9 94 demonstrated impact on knowledge and attitudes towards Indigenous peoples by  
10  
11 95 learners. However, none of these studies were able to establish an observable impact  
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14 96 with respect to a shift towards more culturally safe and clinical practice guideline adherent  
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16  
17 97 health care for Indigenous patients.  
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## 21 22 99 **STRENGTHS AND LIMITATIONS OF THIS STUDY**

- 23  
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26 100 • Our systematic review was designed and co-led by Indigenous scholars  
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28 101 and Indigenous cultural safety education leaders.
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32 102 • Our systematic review utilized a quality appraisal tool designed by an  
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34 103 Indigenous-led research centre in partnership with Indigenous community  
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36 104 members.
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41 105 • The review is limited to ICS programs with evaluations that have been  
42  
43 106 published in the peer reviewed literature and as such, may not have  
44  
45 107 captured the true breadth of existing Indigenous cultural safety training  
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47 108 programs and related evaluations.  
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## 110 INTRODUCTION

111 Colonization has long been recognized by Indigenous peoples from around the world as  
112 a cross-cutting and foundational determinant of Indigenous/non-Indigenous health  
113 disparities.(1) More recently, a series of apologies by world leaders has enhanced general  
114 societal awareness of anti-Indigenous colonial injustices, abuses, and harms.(2–5)  
115 Simultaneously, a rapidly growing body of academic scholarship clearly demonstrates  
116 ongoing, widespread, and harmful anti-Indigenous colonial policies and practices that are  
117 rooted in racist ideologies of white supremacy.(6–12)

118  
119 Common manifestations of persistent colonialism include the emergence of deeply rooted  
120 negative anti-Indigenous stereotyping and assumptions in micro level social interactions,  
121 organizational design, and social architecture. In healthcare contexts, this includes: racist  
122 contamination of the healthcare provider-Indigenous patient interface; organizational  
123 level barriers to equitable Indigenous health services access; and Indigenous/settler  
124 imbalances in the distribution of health and social resources. Social media and linked  
125 public reporting have begun to expose the life-threatening severity of explicit attitudinal  
126 anti-Indigenous racism but there can be resistance to acknowledging the underlying  
127 challenges of ongoing implicit and system level failures. For example, Joyce Echequan  
128 was able to record the anti-Indigenous racist disparagement she experienced from  
129 healthcare staff when seeking treatment for a life-threatening illness at the Lanaudiere

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4 130 hospital in Joliette, Quebec immediately prior to her death. (13) The behaviours of the  
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6 131 individual providers were widely regarded as grossly unacceptable following media  
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9 132 reporting. However, the Premier of Quebec refused to acknowledge the role of systemic  
10  
11 133 racism in Joyce's death.(14)

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16 135 Multiple studies have demonstrated that implicit race preference bias is common among  
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19 136 health care providers,(15) even when they explicitly express anti-racist values and  
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22 137 attitudes.(16) Further, implicit race preference bias has been linked to differential  
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25 138 application of clinical practice guidelines, with non-adherence disproportionately  
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27 139 impacting socially excluded racialized and ethnic patient populations.(17)

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32 141 Not surprisingly, given the broad scope and injurious impacts of anti-Indigenous racism,  
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35 142 its interruption in healthcare contexts has emerged as a priority for Indigenous and allied  
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38 143 policymakers, practitioners, and researchers. Of the Truth and Reconciliation  
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41 144 Commission of Canada's seven Calls to Action in the domain of health, two address the  
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44 145 need to provide "cultural competency" training for healthcare providers.(18) These policy  
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47 146 recommendations have been accompanied by a rapid growth of interventions designed  
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51 147 to interrupt anti-Indigenous racism, primarily through educational interventions for  
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54 148 healthcare providers and trainees. Upon engagement with this literature,(19) it became  
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57 149 apparent to our team that the approach, content, and evaluations of existing cultural  
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60 150 competency trainings vary widely. It was unclear which training approaches and

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4 151 strategies were most effective, especially with respect to improving disparities in clinical  
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6 152 outcomes.  
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11 154 In order to address these knowledge gaps, we conducted a systematic literature review  
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14 155 focused on the design and impacts of existing Indigenous cultural safety and competency  
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16 156 training interventions. The primary aim of this review was to identify, appraise and  
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19 157 synthesize the design and impacts of these educational interventions on non-Indigenous  
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22 158 health care professionals' knowledge, attitudes, and practices. The secondary aim was  
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25 159 to investigate whether specific training approaches, strategies, formats, or educational  
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28 160 content were more successful, and if yes, for whom and in what ways. To help manage  
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31 161 heterogeneity, we restricted this review to Indigenous specific educational interventions  
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34 162 in Australia, Canada, New Zealand, and the United States. These globally affluent  
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37 163 countries share both relatively well-resourced health and social service systems and  
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40 164 history of European colonization that continues to negatively impact the health and  
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43 165 wellbeing of First Peoples, including equitable access to these service systems.  
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## 48 167 **METHODS**

49 168 The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)  
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51 169 2020 statement was used to guide our literature review and reporting.(20) Supplementary  
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54 170 Figure 1 documents the process of article screening for inclusion in our analysis. Tables  
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171 1 and 2 summarize key aspects of the included studies: intervention content; participants;  
172 evaluation methods; and study outcomes.  
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**Table 1. Summary of Interventions**

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute online PowerPoint presentation and YouTube video	Online module(s)	Online	Cultural knowledge, spirituality, and beliefs; professional practice issues; interpersonal communication skills	Emergency Department healthcare providers and staff (n=6)
Barnabe C., et al.	2021	Canada	Phase I: half-day workshop, and Phase II: full day workshop (6 months later)	Online module(s); interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; oppressive and racist policies, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	2020	New Zealand	2 self-paced online modules	Online module(s); self-learning tools; personal reflections	Online	Family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour workshops over 6 weeks	Didactic lecture; interactive group discussions, reflections, and experiential exercises; personal reflections	Clinical	Cultural knowledge and ideology	Emergency Department: nursing, clinical and allied health staff (n=48)
Crowshoe L., et al.	2018	Canada	Full day (8 hours) workshop	Interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)

1	Hinton R., et al.	2014	Australia	3 full-day workshops over 2 months	Didactic lecture; interactive group discussions, reflections, and experiential exercises; self-learning tools	Clinical	Specific health focus	Clinical and Allied Health Staff (n=21)
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6	Hulko W., et al.	2021	Canada	8-10 hours of online training over 8-10 weeks, and a full day Storytelling Session and Talking Circle with an Elder	Online module(s); story telling and talking circles; knowledge quiz; personal reflections	Online and classroom	Indigenous diversity; family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; specific health focus	Nurses (n=38)
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15	Kerrigan V., et al.	2020	Australia	Full day (7 hours) workshop	Didactic lecture; interactive group discussions, reflections, and experiential exercises	Clinical	Cultural knowledge, spirituality, and beliefs; past policies and practices; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
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22	Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
23								
24								
25	Liaw S-T., et al.	2015	Australia	Half day workshop, case study toolkit, and cultural mentors	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	Clinical practice - solo physician/groups (n=10)
26								
27								
28	Liaw S-T., et al.	2019	Australia	Half day workshop, case study toolkit, and cultural mentor	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	General practice clinics (n=56); general practitioner physicians (n=334); practice managers (n=56); practice nurses (n=93)
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31								
32	Sauvé A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
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37	Wheeler A., et al.	2021	Australia	1.5 hour online module, and a full day in-person workshop (2-3 weeks later)	Online module(s); interactive group discussions, reflections, and experiential exercises; personal reflections	Online and classroom	Health disparities; professional practice issues; interpersonal communication skills	Pharmacists (n=39)
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**Table 2. Summary of Evaluation and Outcomes**

Citation	Study design	Method	Tool(s)	Reported Outcome(s)
Barajas J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); free-text questions; Experience survey	Significant change in knowledge, skills, and approach to social and cultural factors. Intervention was reported as being relevant and meeting expectations.
Brewer K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI people. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Participant observations. Intervention satisfaction survey	Onsite satisfaction evaluation; observations of participant engagement with content on day; online survey	Significant improvement in knowledge, skills, awareness, confidence, and approach to patient care. Strong agreement that the workshop met objectives and expectations.
Hinton R., et al. 2014.	Mixed methods, action-oriented	File audit	2009 vs. 2011 audit of inpatient files	Some improvements to the quality of recovery-oriented care, as shown through an increase in recording client social history, family issues, and cultural factors.
Hulko W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, knowledge quizzes, and case study care planning. Talking Circles.	Approaches to Dementia Questionnaire; Indigenous Cultural Competency Knowledge Quiz; care plans for "Alice;" Talking Circle transcripts	Improvement in the knowledge, skills, and values of the nurse participants. Storytelling sessions were reported as being effective at building capacity.



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Kerrigan V., et al. 2020.	Mixed methods	Post-survey	Likert-scale questions on Quality of Training; free-text questions	Provided good to excellent information provided on all topics. Participants wanted further and more specific cultural education opportunities.
Kerrigan V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention interviews	Cultural Quotient questionnaire; file audit of health checks and clinical risk factors managed; follow-up interviews with staff, cultural mentors, and patients	Clinical practices improved their readiness to provide culturally appropriate care. Individual clinic staff improved their cultural strategic thinking.
Liaw S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	Cultural Quotient questionnaire; audit of rates of healthcare claims and chronic disease risk factors.	No significant change in Indigenous health check rates or cultural quotient scores.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); additional adapted questions; acceptability survey	Significant improvement in cultural capability, confidence, and skills. Significant change in motivation to improve health outcomes for Indigenous patients and reduce barriers. Acceptability of the intervention and perceived value-add to participant practice.

view only

## 176 **Search strategy**

177 Consistent with the search methods outlined in the Cochrane Handbook for systematic  
178 reviews,(21) an Information Specialist (CZ) conducted database searches in Ovid  
179 Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials,  
180 Cochrane Database of Systematic Reviews, Bibliography of Indigenous People in North  
181 America, Applied Social Sciences Index & Abstracts, ERIC (Education Resources  
182 Information Center), International Bibliography of the Social Sciences, ProQuest  
183 Dissertations & Theses Global, Sociological Abstracts, and Web of Science's Social  
184 Sciences Citation Index and Science Citation Index. Search strategies were adapted for  
185 each database and used a comprehensive combination of subject headings and  
186 keywords for the concepts of Indigenous people, cultural competence and health  
187 professionals' education. Databases were searched for English language records from  
188 2006 to May 12, 2022 and uploaded into Colandr.(22) The reference lists of seminal texts  
189 and review articles were then reviewed for additional records. An additional 3 articles  
190 were identified for study inclusion. For the detailed search strategies see Supplementary  
191 Figure 2.

## 193 **Study screening**

194 Two independent reviewers screened all title and abstracts for full text review using the  
195 following inclusion criteria:

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4 196 (1) Study specific to Indigenous contexts in what is now known as Australia, Canada,  
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6 197 New Zealand, and/or the United States of America;

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9 198 (2) Study describes educational interventions (workshops, training, coursework,  
10  
11 199 community visits, etc.) designed/implemented to improve cultural safety, cultural  
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14 200 competency, and/or cultural awareness;

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17 201 (3) Educational intervention focused on a majority of non-Indigenous adult participants  
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19 202 health care professionals who provide services (e.g., health or social services) to  
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22 203 Indigenous peoples.

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26  
27 205 In the event that there was not enough information in the abstract to determine inclusion  
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30 206 according to these 3 criteria, or the independent reviewers did not agree on inclusion, the  
31  
32 207 full text was retrieved for review and joint decision making.

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35 208

36  
37 209 Three researchers collaborated on full-text screening and further eliminated articles that  
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39  
40 210 did not meet the primary screening criteria and two additional secondary screening  
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42  
43 211 criteria. These additional screening criteria required that the article contain: (i) detailed  
44  
45 212 information about the educational intervention's design and implementation; (ii) defined  
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47  
48 213 evaluation outcomes. As per our inclusion criteria, we excluded studies in which the  
49  
50  
51 214 majority of the learners were Indigenous and/or the focus of the intervention was at the  
52  
53 215 organizational versus health care provider level. We additionally excluded train-the-  
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56 216 trainer interventions in which the participants were not directly providing health services.

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4 2175  
6 218 **Data Abstraction and Quality Appraisal**  
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8  
9 219 Three researchers collaborated on data abstraction across the following categories:  
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11 220 study methods (design, evaluation methods and tools, participants,  
12  
13  
14 221 sampling/recruitment), study population, sampling and recruitment methods, educational  
15  
16 222 intervention design (pedagogy, content, modifications) and outcomes (individual and  
17  
18  
19 223 system level).

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21  
22 224 Two independent reviewers completed preliminary data abstraction and the lead author  
23  
24 225 (BJH) subsequently reviewed all abstractions and finalized Tables 1-3. The lead and  
25  
26  
27 226 senior authors (BJH, JS) independently appraised methodological quality using a tailored  
28  
29 227 version of the Well Living House quality appraisal tool (WLHQAT) (23–25)  
30  
31 228 (Supplementary Figure 3) and subsequently met to discuss and reach consensus on  
32  
33  
34 229 scores. WLHQAT includes three equally weighted assessment domains: local  
35  
36  
37 230 Indigenous community relevance of methods; rigor and validity; and strength of evidence  
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39  
40 231 and has a maximum total score of 12. Studies with a total score of <7 were not included  
41  
42  
43 232 in the full synthesis. The interdisciplinary nature of included studies added complexity to  
44  
45 233 the quality appraisal, in that the research team, study design, concepts and priorities, data  
46  
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48 234 collection, and measures were wide-ranging.

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**Table 3: Summary of Indigenous Inclusion**

Citation	Study Design	Curriculum Development	Curriculum Delivery	Curriculum Evaluation	Study Analysis	Dissemination	Positionality
Barajas J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed

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4 2375  
6 238 **Synthesis**

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9 239 We applied an iterative narrative approach to our synthesis.(26) This method was a good  
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11 240 fit with the heterogeneity of study designs and outcomes and our secondary aim to  
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13  
14 241 understand which specific training approaches were impactful for whom and in what  
15  
16 242 ways. In addition to our primary aim of identifying, summarizing, and assessing the  
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18  
19 243 design and outcomes of existing published evaluations of Indigenous cultural safety  
20  
21  
22 244 education programming for health care professionals, we were particularly interested in  
23  
24 245 documenting underlying pedagogies, instructional strategies, formats, and content and  
25  
26  
27 246 how these might be related to program success across participant groups and contexts.  
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29  
30 247 We were also interested in the involvement of Indigenous instructors and Indigenous  
31  
32 248 communities and how this might have contributed to program success.

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38 250 The lead author led the synthesis of study design, participants, quality, and outcomes,  
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40 251 drawing on data abstraction and with regular input from the other authors. Refinement of  
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42  
43 252 secondary narratives regarding (i) the role of underlying pedagogies and (ii) Indigenous  
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45 253 instructor and community involvement was achieved through iterative discussion of  
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47  
48 254 independently identified themes among the authorship team followed by in depth re-  
49  
50  
51 255 examination of the included studies by the first author.

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53 256 Throughout the analysis, we applied a critical decolonizing lens where we intentionally  
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56 257 centered the distinct and diverse knowledges and strengths present in Indigenous

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4 258 communities' practices of health and wellbeing. (27–30) The authors sought to  
5  
6 259 acknowledge and critique the systemic power dynamics that so often inform existing  
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9 260 health program evaluation models, particularly when applied to oppressed populations,  
10  
11 261 including Indigenous peoples in what is now known as Australia, Canada, New Zealand  
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13  
14 262 and the United States. In so doing, we applied foundational Indigenous principles, the 5  
15  
16 263 R's: relationships, reciprocity, responsibility, respect, and, relevance,(31,32) all of which  
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18  
19 264 are critical to the formation of space in which to consider and critique the inclusion (or  
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21  
22 265 lack thereof) of Indigenous knowledges and practices in evaluation. Research that looks  
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24  
25 266 to learn about Indigenous experiences of health programs and policies requires  
26  
27 267 acknowledging the unique and distinct relations and interconnections held by Indigenous  
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29  
30 268 peoples that are so often decontextualized through the application of Western  
31  
32 269 methodologies.(23) In keeping with this approach, it is important for us to self-locate the  
33  
34  
35 270 authorship team as comprised of two Indigenous women (JS, DS), one racialized settler  
36  
37 271 ally (BJH), and two non-racialized settler allies (SF, CZ).  
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## 41 42 43 273 **RESULTS**

### 44 45 274 **Literature search**

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47  
48 275 The literature search strategy resulted in 2,442 citations (following removal of any  
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51 276 duplicates), from which 2,250 were deemed ineligible based on title and abstract  
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54 277 screening. 192 articles were selected for full text review from which 176 were excluded  
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4 278 based on: the primary inclusion criteria (1-3) and the secondary inclusion criteria (i)  
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6 279 (n=147); or secondary inclusion criteria (ii) (n=29). (Supplementary Figure 1) We were  
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8  
9 280 left with 16 unique studies that described and evaluated Indigenous cultural safety training  
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11 281 for health professionals and were deemed eligible for full synthesis inclusion.(33–48)

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14 282

### 15 16 283 **Quality Appraisal**

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18  
19 284 Among the 16 studies that were included, 3 scored <7 on the WLHQAT.(38,39,46) These  
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21  
22 285 studies were excluded from the synthesis. Lower scores reflected a combination of the  
23  
24  
25 286 following: limited, to no involvement of Indigenous community partners in the evaluation;  
26  
27 287 inadequate sample size and/or lack of participant uptake and/or retention in the  
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29  
30 288 evaluation; and/or weak evaluation study design.(39,46) For instance, a low score could  
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32  
33 289 reflect that Indigenous scholars or community members were involved in the design  
34  
35 290 and/or delivery of the training program but not in the design and/or implementation of the  
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37  
38 291 evaluation. Another study did not triangulate their qualitative study results.(38)

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### 41 42 43 293 **Study and population characteristics**

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45 294 The 13 analyzed studies were published between 2014 – 2022. The majority (n=7) were  
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47  
48 295 conducted in Australia.(36,40,42–45,48) A smaller number (n=4) took place in  
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50  
51 296 Canada.(34,37,41,47) Of the last two studies, one (n=1) was conducted in the United  
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54 297 States (US)(33) and the other (n=1) was conducted in New Zealand (n=1).(35)

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4 299 Evaluation design varied widely. Nine of the studies (n = 9) applied mixed methods  
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6 300 (33,34,37,40–42,44,45,48) including various combinations of surveys, open ended  
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8  
9 301 questions, semi-structured interviews, and talking circles. One of these was a  
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11 302 randomized trial that incorporated a participatory action research approach, in which the  
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14 303 research team cooperated with the communities, supporting institutions and  
15  
16 304 participants.(45) Two (n=2) studies were qualitative. (35,43) Another two (n=2) were  
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19 305 quantitative.(36,47) Eight studies (n=8) incorporated pre/post intervention  
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21  
22 306 surveys.(34,36,37,41,44,45,47,48) Six of the studies (n=6) incorporated some measure  
23  
24  
25 307 of longer-term impact as part of the evaluation with varied follow-up periods: across 3  
26  
27 308 years (40); 12 months (45); 6 months (35,44); and 3 months.(34,37) The remainder of the  
28  
29  
30 309 studies (n=7) collected post intervention data immediately following the intervention. One  
31  
32 310 intervention was described and evaluated across multiple publications as part of a larger  
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34  
35 311 research program.(44,45) Most (n=10) but not all of the studies, provided access to  
36  
37  
38 312 and/or a detailed description of their evaluation tools.(33–37,40,44,45,47,48) Of the  
39  
40  
41 313 eleven studies that used survey tools, eight employed previously validated evaluation  
42  
43 314 tools, (34,36,37,41,44,45,47,48) two of these, although validated, were adapted by the  
44  
45 315 research team.(37,47)

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48 316  
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50 317 Sample sizes varied widely, ranging from 6 to 621, and studies took place in various  
51  
52  
53 318 settings. The majority (n=8) occurred in clinical settings and the remainder were either  
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55  
56 319 online (n=3) or a mix of online and in a classroom (n=2). Three of the studies (n=3)

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4 320 recruited specialized practitioners: rheumatologists (34), pharmacists (48), and speech  
5  
6 321 language therapists (35). One study recruited only family medicine residents (47)  
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8  
9 322 whereas another focussed on nurses .(41) Four of the studies (n=4) delivered  
10  
11 323 interventions tailored to providers serving a specific health service user population:  
12  
13  
14 324 arthritis (34), psychiatric care and mental health (40); residential care (41), and Māori  
15  
16 325 adults with aphasia .(35)  
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19 326  
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### 22 327 **Reported Impacts of Indigenous Cultural Safety Education or Training**

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24 328 Study outcomes were almost exclusively learner focused (n=10) and included learner  
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26  
27 329 self-reports regarding: quality of the learning experience; changes in knowledge or  
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29  
30 330 awareness; shifts in beliefs; attitudes regarding Indigenous peoples and their care  
31  
32 331 experiences; and/or confidence and skill to care for Indigenous peoples.(33–37,41–  
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34  
35 332 43,47,48) (Table 2) A subset of learner focused studies (n=4) included measures of self-  
36  
37 333 reported changes in practice.(34,35,41,43) These impacts were assessed using proxy  
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40 334 measures of clinical behaviour including post-intervention interviews with learners  
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42  
43 335 (35,43), or through the use of scenarios(34) or vignette-based care plans.(41). Although  
44  
45 336 many of the studies reported significant changes in participants' attitudes, knowledge  
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47  
48 337 and awareness, these findings were tempered by limitations in study design and  
49  
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51 338 implementation, such as self-selection bias,(34–36,41–43,47,48) small sample size, low  
52  
53 339 uptake and retention,(33–35,37,43,47,48) the lack of randomization and/or controls (all,  
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55  
56 340 except for(45)) and potential social desirability response bias.(35) Conclusions regarding  
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4 341 sustained impact over time, were limited by a paucity of studies (n=6) that included  
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6 342 longitudinal measurements.(34,35,37,40,44,45)  
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9 343  
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11 344 Few studies reported on clinical outcomes, and most were based on self-assessments  
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13  
14 345 (n=4) as described above.(34,35,41,43) Three studies described externally-assessed,  
15  
16 346 patient-based practice outcomes through the use of file audits (40,44,45) and qualitative  
17  
18  
19 347 interviews with patients at the participating clinics.(44) Of note, the one study that  
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21  
22 348 included a randomized control and externally assessed, patient-based practice outcomes  
23  
24 349 did not demonstrate any significant intervention impact.(45)  
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27 350  
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29 351 Terminology varied widely across the studies, a phenomenon that has already been  
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32 352 described elsewhere by Curtis et al (49) as negatively impacting the quality of the  
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35 353 evaluations and the ability to draw evidence-based comparisons. Some studies referred  
36  
37 354 to cultural safety(33,35,41,43) while others used terms such as: cultural awareness,(42)  
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40 355 cultural security,(40) cultural respect, (44,45) cultural competency(35–37), cultural  
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43 356 humility,(34) cross-cultural education and cultural capability, (48) and intercultural  
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45 357 empathy.(47) A few studies relied upon proxy measures to assess cultural safety. For  
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47  
48 358 example, Crowshoe et al(37) described an increase in learners' "confidence" as a proxy  
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50  
51 359 for cultural safety. Kerrigan et al(42) focused on behaviour change and self-reported  
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53 360 aspiration as indicative of positive clinical outcomes, and noted that although "it was  
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55  
56 361 impossible to assess" whether their intervention shifted behaviour, they could "surmise

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4 362 that health professionals aspire to transfer learning to the workplace.”(42)p7) Similarly,  
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6 363 in a later paper, Kerrigan and colleagues (43) suggested, based upon post intervention  
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8 364 interviews with learners, that “[D]octors changed behaviour in relation to building rapport  
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11 365 with patients, asking patients questions, working with Aboriginal interpreters, gaining  
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13  
14 366 informed consent.” (p13) In conclusion they noted that there is “still a need to assess if  
15  
16 367 training improves patient experience and outcomes” (p14) to determine whether the  
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18  
19 368 intervention improved cultural safety.(43) A few authors reflected on the overall  
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21  
22 369 limitations of their findings, suggesting that they were not generalizable and/or that  
23  
24 370 additional research is required. (33,41,42,47) Hulko and colleagues(41) indicated that  
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26  
27 371 their intervention and evaluation was based upon Secwepemc ways of knowing and being  
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29  
30 372 and doing and as such could not be scaled up whereas Barajas(33) acknowledged the  
31  
32 373 value of specificity and context and warned against developing and implementing training  
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35 374 programs through a pan-Indigenous approach.  
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#### 40 376 **Training approaches and methods**

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43 377 Theoretical frameworks and pedagogical approaches were manifold. Studies referenced  
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45 378 transformative learning theories(34,43,47); social-constructivist frameworks (40);  
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47  
48 379 diffusion of innovation theory (33); a public health framework (35); and, Educating for  
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51 380 Equity (E4E) (34,37). Liaw et al(44,45) describe a trans-theoretical approach in which  
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53 381 they harmonised cultural intelligence frameworks, developments in cultural respect,  
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56 382 safety and competence and a review of successful Aboriginal programs alongside  
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4 383 consultation with Aboriginal communities and others. Others (n=4) designed their  
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6 384 program with cultural safety and decolonizing philosophies at their core.(35,36,42,43) For  
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8  
9 385 example, Kerrigan et al(42) place the responsibility for change on the “hegemonic  
10  
11 386 individuals and institutions.”(42) p3) Only one paper explicitly cited critical race theory  
12  
13  
14 387 (43) as a core component. A limited number (n=3) did not cite a conceptual theory or  
15  
16 388 framework and instead reviewed cultural safety, competency and awareness in health  
17  
18  
19 389 care training and the possible benefits related to training programs.(36,41,48) Lastly,  
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21  
22 390 some of the training programs applied participatory action approaches or community-  
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24 391 based approaches to the development and delivery of the training.(40,41,43–45)  
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27 392  
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30 393 Participation for all programs was voluntary. Overall, there were similarities in course  
31  
32 394 content across programs. Training delivery modalities varied and included combinations  
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34  
35 395 of online modules, didactic lectures, interactive group discussions, workshops,  
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38 396 simulations, and reflections. (Table 1) Only one was delivered as a series of online  
39  
40 397 podcasts (n=1), an approach which was well-received by learners.(43) Although some in-  
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42  
43 398 person trainings (n=3) were delivered by non-Indigenous instructors,(40,44,45) most  
44  
45 399 (n=7) were co-delivered/facilitated by a mix of Indigenous and non-Indigenous facilitators  
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47  
48 400 (34,37,41,47) or delivered only by Indigenous facilitator(s)/instructor(s) (Table  
49  
50  
51 401 3).(36,42,48) Some of the more innovative approaches incorporated story-telling and  
52  
53 402 talking circles with Elders (41); podcasts developed and voiced by Elders (43); and,  
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55  
56 403 simulation training facilitated with Indigenous community members.(47) Liaw et al(44,45)

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4 404 delivered an integrative program, Ways of Thinking, Ways of Doing, which in addition to  
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6 405 a short workshop, participants were also provided with a case study reference toolkit and  
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8  
9 406 a cultural mentor.

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14 408 With one exception,(45) all of the training programs reported some level of impact, though  
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16 409 only a few of the authors linked the observed impact to their training approaches and  
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19 410 methods. Some directly attributed action-oriented (40,44,45) and community-  
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22 411 based(33,41,47) approaches to the impact of the interventions. However, the same  
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25 412 authors also noted that the participatory components to the learning materials were not  
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27  
28 413 incorporated consistently (e.g. AIMhi care plans and engagement of Aboriginal Mental  
29  
30 414 Health Workers (40) and cultural mentors(45)). Crowshoe et al(37) suggested that the  
31  
32 415 impact of their training program was related to “interactive educational techniques and  
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34  
35 416 intentional facilitation strategies”(p54) including a combination of Indigenous and non-  
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37  
38 417 Indigenous facilitators. Notably, this study had a high drop-out rate with less than half of  
39  
40 418 the registered learners completing the post-survey.(37) Chapman and colleagues,(36)  
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43 419 who applied a multi-modal training delivered by an Indigenous trainer, described how the  
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45  
46 420 impact of their training program was limited to significant changes in learners’ perceptions  
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48  
49 421 whereas learners’ attitudes remained unchanged. Kerrigan and colleagues’(43) claimed  
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51 422 their online Elder podcast changed both learner attitudes and behaviours among a small,  
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54 423 convenience sample of 14 learners, based on the analysis of semi-structured interviews  
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56 424 post-intervention.

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6 426 **Indigenous community understandings of measures of success**

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9 427 Indigenous cultural safety can only truly be assessed through the lens of Indigenous  
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11 428 patients and communities who ultimately are the recipients of clinical care.(50) It follows  
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14 429 that Indigenous patient and community understandings and measures of success are  
15  
16 430 critical to assessing the impact of any Indigenous cultural safety training program.  
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19 431 However, the degree of involvement of local Indigenous people and communities in the  
20  
21 432 development, implementation, and evaluation of the educational interventions was limited  
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23  
24 433 overall and differed across the studies. Table 3 (Indigenous Inclusion) provides a  
25  
26 434 summary overview. Six out of the thirteen peer reviewed papers included statements  
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28  
29 435 describing the ethnic and/or Indigenous identity of the authors. Of these, half (n=3)  
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31 436 covered the entire authorship(33,41,43) and the remainder (n=3) limited self-location to  
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33  
34 437 Indigenous co-authors.(34,37,42) For the most part, Indigenous individuals and/or  
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37 438 community members contributed to the development and delivery of the curriculum, either  
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40 439 as members of the research team or as local Indigenous community members engaged  
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43 440 through participatory and partnered approaches.

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48 442 Contributions by local Indigenous communities to study evaluations, were far more  
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51 443 limited, and rarely drew upon health care delivery and/or patient experience. Some  
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53 444 established partnerships with Indigenous run organizations(44,45) whereas others relied  
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56 445 upon survey tools that were developed in partnership with Indigenous advisors and

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4 446 communities,(36,48) however, these were not always locally informed. Others involved  
5  
6 447 Indigenous Elders in the evaluation process.(41,43) In these examples, the Elders were  
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8  
9 448 involved in both the development and the evaluation of the curriculum. Lastly, only one  
10  
11 449 evaluation focused on health care delivery and/or patient experience and included  
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14 450 interviews with Indigenous patients and cultural mentors. (44)  
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## 19 452 **DISCUSSION**

22 453 The rapid growth of Indigenous cultural safety training for health care professionals is  
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24 454 linked to a global movement to interrupt Indigenous/non-Indigenous health inequities,  
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27 455 which are rooted in persistent colonial attitudes and systems, including anti-Indigenous  
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29  
30 456 stereotyping and racism. (51)The majority of the papers included here provide a rich  
31  
32 457 description of Indigenous cultural safety training program approaches, content, and  
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34  
35 458 implementation. In contrast, analysis and synthesis of the accompanying evaluations of  
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37  
38 459 these same training programs revealed clear and cross-cutting gaps in the demonstration  
39  
40 460 of clinical and/or system level impacts, even though these are commonly referenced as  
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42  
43 461 desired outcomes. The majority of evaluations were limited in focus to learner  
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45 462 experiences and self-reported practice outcomes. For example, Kerrigan and  
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48 463 colleagues(43); Brewer and colleagues (35) and Barajas (33) all suggested, through their  
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51 464 evaluations, that the training programs resulted in changes in self-reported behaviour and  
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53 465 as such, intention and practice. These outcomes however, are subject to self-reporting  
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4 466 response bias such as social desirability. While many of the studies were able to  
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6 467 demonstrate some level of impact on knowledge and attitudes towards Indigenous  
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9 468 peoples by learners, none of these studies were able to establish an observable impact  
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11 469 with respect to a shift towards more culturally safe and clinical practice guideline adherent  
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13  
14 470 health care for Indigenous patients.  
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19 472 **Evidence of shifts in knowledge and attitudes; but evidence-base is limited**  
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22 473 Self-reported shifts in knowledge and attitudes regarding Indigenous peoples did improve  
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24 474 across most of the studies.(33–37,41–43,47,48) Although limited, two of the studies  
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26  
27 475 suggested that these shifts may be sustained over time.(34,35) However, when  
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30 476 considering the stated impact of these studies, it is also important to take into account the  
31  
32 477 many limitations inherent in the study design. Evaluation studies relied upon voluntary  
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35 478 self-selection. Sample sizes were generally small and those that were longitudinal  
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38 479 showed significant baseline to post-intervention loss to follow-up. Eight of the thirteen  
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40 480 evaluations involved pre-post assessments involving surveys and/or focus  
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42  
43 481 groups.(34,36,37,41,44,45,47,48) Only one of these included a control group.(45) In  
44  
45 482 addition, only 8 of the studies included validated quantitative surveys that employed  
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47  
48 483 scales.(34,36,37,41,44,45,47,48) As a result, the shifts in knowledge and attitudes can  
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50  
51 484 'at best' be correlated with the described intervention and are limited by several biases  
52  
53 485 arising from the dynamics of course evaluation and marking, participant optimism and in  
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56 486 some instances, the lack of anonymity as well as voluntary and low response rates. For  
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4 487 the most part, when the described impact was an observable increase in knowledge or  
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6 488 shift in attitudes, studies also tended to focus on participant experience of the program.  
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9 489 These measures highlight how participants expressed gratitude regarding what they  
10  
11 490 learnt and spoke to how this might have improved their confidence in working with  
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14 491 Indigenous patients going forward. These shifts in confidence, although surely positive,  
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16 492 cannot be interpreted as evidence of improved quality of care towards Indigenous patients  
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19 493 in the health care system.  
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24 495 **Very little evidence of patient focused impacts and no measures of systems-level impact**

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27 496 Cultural safety by definition can only be determined and evaluated by the person receiving  
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30 497 the care and their family,(50) yet only three of thirteen studies included tools designed to  
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32 498 evaluate patient experience: a subset of patient interviews post intervention(44) and  
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35 499 pre/post file audits.(40,45) Interestingly, Liaw and colleagues saw no impact, and  
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38 500 concluded, that “the lack of effect of the intervention may be attributable to study design  
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40 501 limitations, complex and indirect relationship between the intervention and the outcome  
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43 502 measures, or contextual factors that influenced the fidelity of the intervention at the  
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45 503 Medicare Local/PHN level and its ability to achieve measurable changes in the target  
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47  
48 504 behaviours.”((45) p267) None of the studies attempted to measure adherence to clinical  
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51 505 practice guidelines, which could be evaluated through standardized patients(53–55) or  
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53 506 audits of clinical care.(56,57) Kirkpatrick has argued that it is “difficult, if not impossible  
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56 507 to evaluate the impact of training on an organization due to an inability to separate the  
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4 508 variables which could be attributed to other factors.” ((52) p59) In this study, we focused  
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6 509 on interventions implemented at the level of the health care provider, however, the  
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9 510 approach does not limit the evaluation to individual level measures, as cultural safety  
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11 511 training of health care providers can have organizational-level impacts. None of the  
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14 512 studies evaluated systems-level changes that may have been associated with individual  
15  
16 513 training. Understanding the networked effect of how training participants subsequently  
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18  
19 514 influence their colleagues will be important going forward. Hulko and colleagues(41)  
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21  
22 515 noted that cultural safety research in general needs to advance tools that will measure  
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24 516 these effects, and noted that organizational change will require institutional supports and  
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27 517 policy changes that encourage health care professionals to implement culturally safe  
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30 518 practices.

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### 33 34 35 520 **Impactful specific training approaches, strategies, formats or content**

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37 521 The application of purposeful, evidence based, pedagogical theory and practices that  
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40 522 advance pre-requisite knowledge, self-awareness and skills is critical to the success of  
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43 523 cultural safety training and education programs. A number of the reviewed studies  
44  
45 524 described how specific training approaches, formats or content may have contributed to  
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48 525 impact, however, most of the authors were also careful to note the limitations of their  
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51 526 outcomes and the need for further research to clarify whether and if so, how, approach  
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53 527 and content of the training program contributed to the outcomes. Some authors also  
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56 528 described how variation between past and current evaluations of Indigenous cultural

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4 529 safety, including conceptual frameworks, measurement tools and aims, resulted in an  
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6 530 overall lack of consensus and limited the development of an evidence-base.(35,42)  
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9 531 Hinton et al(40) spoke to the value of a participatory action-oriented study design that  
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11 532 incorporated institutional leadership as change agents and clinical champions to  
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14 533 encourage recruitment and uptake. This was further supported by Brewer et al.(35) who  
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16 534 observed low uptake and argued that incentives, particularly over the longer term, were  
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18  
19 535 not always effective and that to improve uptake, and consequently evaluation, training  
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21  
22 536 ought to be “compulsory or obligatory” and recommended organizational commitment and  
23  
24 537 team involvement. Implementing mandated training alongside appropriate evaluations  
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26  
27 538 using file audits, simulation and/or standardized patients will undoubtedly require training  
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29  
30 539 and evaluation protocols that address arising concerns of participant health care  
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32 540 professionals.

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35 541  
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37 542 The evidence was limited as to whether or not inclusion of Indigenous people and  
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40 543 communities contributed to successful outcomes, although a number of the studies  
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43 544 referenced various components, such as Indigenous vodcasts, guest speakers, cultural  
44  
45 545 mentors, and academic lecturers as key to the programs they evaluated. Liaw and  
46  
47  
48 546 colleagues concluded that the strength of their program may have been resultant from  
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50  
51 547 the inclusion of cultural mentors who, when “working with practice staff in their own  
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53 548 environment, were effective translators of cultural respect theory and knowledge, as  
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56 549 formalized in the toolkit and delivered by the workshop, into practice.”((44) p391) Hinton

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4 550 and colleagues(40) also made similar observations regarding cultural advisors, who were  
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6 551 involved in the action oriented programming and group sessions.  
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## 10 11 553 **CONCLUDING REMARKS**

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14 554 Overall, there is a paucity of evidence linking existing Indigenous cultural safety training  
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16 555 interventions to enhancements in non-Indigenous health care professionals' knowledge,  
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18 556 culturally safe engagement skills and clinical practice guideline adherence when caring  
19  
20 557 for Indigenous patients. As researchers and practitioners in this field, we note that these  
21  
22 558 gaps in rigorous patient-outcome focused scholarship are rooted in systemic limitations  
23  
24 559 in the resources available to organizations leading this work to carry-out and disseminate  
25  
26 560 comprehensive and cost-intensive evaluations. This systemic under-resourcing and the  
27  
28 561 linked implementation of non-evidence based interventions is problematic, inconsistent  
29  
30 562 with the evidence standards required in other domains of clinical training, and is  
31  
32 563 commonly associated with the same harmful anti-Indigenous, colonial policies and  
33  
34 564 practices that training is designed to disrupt. Further research investment, with funds  
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36 565 directed towards Indigenous-led agencies and organizations that are leading the work in  
37  
38 566 this field, is required to advance training program evaluation design, implementation,  
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40 567 analysis and dissemination to ensure that both the training programs and their evaluations  
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42 568 meets the dual criteria of excellence in Indigenous health research: a) methodological  
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4 569 rigour and b) alignment with and connection to local, regional and /or national Indigenous  
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6 570 priorities and needs.  
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42 747 54. Colliver JA, Vu NV, Marcy ML, Travis TA, Robbs RS. Effects of examinee gender,

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45 748 standardized-patient gender, and their interaction on standardized patients' ratings

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48 749 of examinees' interpersonal and communication skills. *Acad Med*. 1993; 68: 153–7.

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51 750 55. Rethans JJ, Boven CP van. Simulated patients in general practice: a different look at

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54 751 the consultation. *Br Med J Clin Res Ed*. 1987 Mar; 294(6575): 809–12.

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7 753 56. Abad-Arranz M, Moran-Rodríguez A, Mascarós Balaguer E, Quintana Velasco C,  
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10 754 Abad Polo L, Núñez Palomo S, et al. Community Assessment of COPD Health Care  
11  
12 755 (COACH) study: a clinical audit on primary care performance variability in COPD  
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14  
15 756 care. BMC Med Res Methodol. 2018; 18(1): 68–68.  
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18 757 57. Crabtree A, Sundararaj JJ, Pease N. Clinical audit?—invaluable! BMJ Support  
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21 758 Palliat Care. 2020 Jun; 10(2): 213–5.  
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## 760 LIST OF ABBREVIATIONS

761 Well Living House Quality Appraisal Tool (WLHQAT)

## 763 AUTHORS' CONTRIBUTIONS

764 JS and DS conceptualized the systematic review. JS made significant contributions to the  
765 interpretation of the data. CZ carried out the database literature searches. SF and BJH  
766 screened titles and carried out data extraction. BJH and JS carried out the initial analysis  
767 and interpretation of the data and together, generated consensus with SF regarding key  
768 themes. DS commented on high level key themes. BJH, SF and JS drafted sections of  
769 the manuscript and DS commented on the manuscript in progress. All authors contributed  
770 to study design and interpretation of findings, and approved the final manuscript.



771

772 **COMPETING INTERESTS**

773 All authors have completed the ICMJE uniform disclosure form at  
774 [www.icmje.org/disclosure-of-interest/](http://www.icmje.org/disclosure-of-interest/). BJH, SF and CZ declare no competing interests. JS  
775 has no significant competing interests. JS is a sibling of DS. JS and DS are both members  
776 of the Indigenous Cultural Safety Learning Series Advisory Circle in Canada, funded by  
777 San'yas and co-hosted by the Ontario Federation of Indigenous Friendship Centres. The  
778 Indigenous Cultural Safety Learning Series is a webinar series focused on Indigenous  
779 cultural safety. It is guided by an Advisory Circle of Indigenous leaders from across  
780 Canada. DS was employed by the Southwest Ontario Aboriginal Health Access Centre  
781 (SOAHAC) (one of the funding agencies), in the early stages of this review until March  
782 2020. DS is currently employed by San'yas Indigenous Cultural Safety Learning  
783 Programs, Indigenous Health, Provincial Health Services Authority as of September  
784 2020. They offer educational interventions and consultation services designed to uproot  
785 anti-Indigenous racism and promote cultural safety for Indigenous people. One of the  
786 interventions studied included an early version of one of the online training programs  
787 offered by San'yas. It was referred to as Indigenous Cultural Competency (ICC) and was  
788 applied as part of a larger intervention in one of the articles included in the systematic  
789 review. This version was delivered prior to DS' employment with San'yas. The program  
790 is situated within a Provincial Health Services Authority (PHSA) in British Columbia,

1  
2  
3  
4 791 Canada and operated on a non-profit, cost recovery model through fees charged for the  
5  
6 792 training and with oversight by PHSA Indigenous Health Leadership. All of DS'  
7  
8  
9 793 compensation is subject to PHSA policies and DS is not permitted to receive any  
10  
11 794 compensation or payments outside of salary and benefits. DS' contributions were limited  
12  
13  
14 795 to the conceptual design of the study as well as high level commentary and feedback on  
15  
16 796 high level thematic analyses and draft manuscripts. DS was blinded to the mention of ICC  
17  
18  
19 797 (now San'yas) training materials in any discussions related to higher level thematic  
20  
21  
22 798 analysis.

23  
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25 799

## 26 27 800 **FUNDING**

28  
29  
30 801 Dr. Smylie is funded by a Tier 1 Canada Research Chair. This project was also supported  
31  
32  
33 802 by funding from the Southwest Ontario Aboriginal Health Access Centre (SOAHAC) and  
34  
35 803 the St. Michael's Hospital Foundation.

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38 804

## 39 40 41 805 **DATA SHARING**

42  
43  
44 806 Most of the data generated or analysed as well as the WLHQAT applied during this study  
45  
46 807 are publicly available. Additional materials, such as the study protocol and WLHQAT data  
47  
48  
49 808 analyses are available upon request from the corresponding author.

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52 809

## 53 54 810 **PATIENT AND PUBLIC INVOLVEMENT**

1  
2  
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4 811 We did not involve patients or the public in the design, or conduct, or reporting, or  
5  
6 812 dissemination plans of our research.  
7

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9 813

## 10 11 814 **ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

12  
13  
14 815 Ethics approval and consent to participate were not required for this study.  
15  
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## 18 19 817 **ACKNOWLEDGEMENTS**

20  
21  
22 818 The authors would like to acknowledge Michèle Parent Bergeron and SOAHAC for their  
23  
24  
25 819 contributions to the study.  
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Identification

Records identified through databases [n = 3,567]

Records identified through other sources [n = 3]

Records after duplicates removed [n = 2,442]

Screening

Titles and abstracts screened for inclusion [n = 2,442]

Records removed for ineligibility [n = 2,250]

Eligibility

Full texts assessed for eligibility [n = 192]

Full texts excluded based on:  
○ Primary inclusion criteria (1-3) and secondary inclusion criteria (i) [n=147]  
○ Secondary inclusion criteria (ii) [n=29]

Appraisal

Full texts appraised using the WLHQAT [n = 16]

Full texts excluded for scores <7 [n = 3]

Inclusion

Articles included in the final synthesis [n = 13]

## Supplementary Figure 2

### Search Strategies:

Below are the full search strategies exactly as run on the fourth search update on May 12, 2022. Three previous searches were carried out using these strategies on September 18, 2018; July 30, 201; and March 9, 2021. The first search on September 18, 2018 was limited to articles published from 2006 and on.

### Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
 2 exp Indigenous Peoples/ 19761  
 3 Oceanic Ancestry Group/ 11661  
 4 United States Indian Health Service/ 596  
 5 Health Services, Indigenous/ 3819  
 6 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 7 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 8 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 9 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 10 amerindien\* or indigene\*).mp. 79690  
 11 (indian or indians).ti,ab,kw. 82911  
 12 India/ 115065  
 13 6 not 7 55466  
 14 1 or 2 or 3 or 4 or 5 or 8 128874  
 15 Cultural Competency/ 6278  
 16 Culturally Competent Care/ 2028  
 17 Transcultural Nursing/3442  
 18 cultural diversity/ 12558  
 19 cultural\* competenc\*.tw,kf. 4480  
 20 cultural\* safe\*.tw,kf. 941  
 21 cultural awareness.tw,kf. 717  
 22 cultural\* sensitiv\*.tw,kf. 5526  
 23 cultural\* secur\*.tw,kf.54  
 24 cultural humility.tw,kf. 407  
 25 cross-cultural.tw,kf. 15212  
 26 cultural\* respect\*.tw,kf. 115  
 27 anti-racis\*.tw,kf. 349

1  
2  
3 23 antiracis\*.tw,kf. 312  
4 24 postcolonial\*.tw,kf. 426  
5 25 colonial\*.tw,kf. 7112  
6  
7 26 or/10-25 50752  
8  
9 27 exp Health Personnel/581961  
10 28 "Attitude of Health Personnel"/ 129471  
11 29 "Internship and Residency"/ 57027  
12  
13 30 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
14 or worker\* or staff or specialist\* or employee\*)).tw,kf. 363535  
15  
16 31 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
17 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
18 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
19 pharmacist\* or dietician\* or medic\* resident\*).tw,kf. 1374101  
20  
21 32 or/27-31 1933424  
22  
23 33 Education/ 21493  
24 34 curriculum/ 83087  
25  
26 35 competency-based education/ 4429  
27 36 exp education, professional/ 321367  
28 37 exp Inservice Training/ 29907  
29 38 exp Teaching/ 91371  
30 39 exp Teaching Materials/ 123098  
31 40 exp Health Personnel/ed [Education] 63884  
32 41 cultural competency/ed 961  
33 42 Transcultural Nursing/ed [Education] 864  
34 43 exp Culture/ed [Education] 1033  
35 44 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
36 seminar\*).tw,kf. 1604662  
37 45 (professional development or staff development).tw,kf. 13772  
38 46 or/33-45 1870696  
39  
40 47 9 and 26 and 32 and 46 945  
41 48 limit 47 to english language 934  
42 49 limit 48 to ed=20210308-20220512 123  
43 50 limit 48 to dt=20210308-20220512 111  
44 51 limit 48 to ez=20210308-20220512 111  
45 52 limit 48 to yr="2022 -Current" 50  
46 53 49 or 50 or 51 or 52 157  
47 54 remove duplicates from 53 155  
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## Embase Classic+Embase &lt;1947 to 2022 May 11&gt;

1 indigenous people/ or alaska native/ or american indian/ or canadian aboriginal/ or first  
 2 nation/ or indigenous australian/ 32329  
 3  
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 6 1 exp amerind people/ or exp australian aborigine/ or exp eskimo-aleut people/ or exp na-  
 7 dene people/ 7622  
 8  
 9 2 "maori (people)"/ or native hawaiian/ 2383  
 10  
 11 3 exp oceanic ancestry group/ 9022  
 12  
 13 4 indigenous health care/ 1176  
 14  
 15 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 16 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 17 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 18 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 19 amerindien\* or indigene\*).ti,ab,kw. 93751  
 20  
 21 6 (indian or indians).ti,ab,kw. 114804  
 22  
 23 7 exp indian/ 40575  
 24  
 25 8 India/ 167974  
 26  
 27 9 8 or 9 201479  
 28  
 29 10 7 not 10 58826  
 30  
 31 11 (or/1-6) or 11 153454  
 32  
 33 12 cultural competence/ 7387  
 34  
 35 13 transcultural care/ 4825  
 36  
 37 14 cultural sensitivity/ 1261  
 38  
 39 15 cultural diversity/ 2692  
 40  
 41 16 cultural\* competenc\*.tw. 4546  
 42  
 43 17 cultural\* safe\*.tw. 1038  
 44  
 45 18 cultural awareness.tw. 839  
 46  
 47 19 cultural\* sensitiv\*.tw. 6598  
 48  
 49 20 cultural\* secur\*.tw. 71  
 50  
 51 21 cultural humility.tw. 426  
 52  
 53 22 cross-cultural.tw. 15606  
 54  
 55 23 cultural\* respect\*.tw. 137  
 56  
 57 24 anti-racis\*.tw. 310  
 58  
 59 25 antiracis\*.tw. 294  
 60  
 61 26 postcolonial\*.tw. 375  
 62  
 63 27 colonial\*.tw. 7139  
 64  
 65 28 or/13-28 45229  
 66  
 67 29 exp health care personnel/ 1856636  
 68  
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3 31 health personnel attitude/ 88298  
4 32 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
5 or worker\* or staff or specialist\* or employee\*)).tw.478961  
6  
7 33 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
8 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
9 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
10 pharmacist\* or dietician\* or medic\* resident\*).tw. 1881277  
11  
12 34 30 or 31 or 32 or 33 3109487  
13  
14 35 education/ or continuing education/ or course content/ or curriculum/ or curriculum  
15 development/ or education program/ or "outcome of education"/ 615015  
16  
17 36 in service training/ 16717  
18  
19 37 teaching/ 108269  
20  
21 38 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
22 seminar\*).tw. 2082644  
23  
24 39 (professional development or staff development).tw. 15840  
25  
26 40 35 or 36 or 37 or 38 or 39 2297974  
27  
28 41 12 and 29 and 34 and 40 930  
29  
30 42 limit 41 to embase 254  
31  
32 43 limit 42 to english language 253  
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34 44 limit 43 to dc=20210308-20220512 42

#### EBM Reviews - Cochrane Central Register of Controlled Trials <April 2022>

#### EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 11, 2022>

38 1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
39 exp Indigenous Peoples/ 327  
40  
41 2 Oceanic Ancestry Group/ 7  
42  
43 3 United States Indian Health Service/ 4  
44  
45 4 Health Services, Indigenous/ 47  
46  
47 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
48 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
49 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
50 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
51 amerindien\* or indigene\*).mp. 3033  
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53 6 (indian or indians).ti,ab,kw. 5091  
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55 7 India/ 2437  
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57 8 6 not 7 4449  
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5	10	Cultural Competency/	190
6	11	Culturally Competent Care/	110
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8	12	Transcultural Nursing/	14
9	13	cultural diversity/	79
10	14	cultural* competenc*.tw,kf.	100
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12	15	cultural* safe*.tw,kf.	35
13	16	cultural awareness.tw,kf.	13
14	17	cultural* sensitiv*.tw,kf.	589
15			
16	18	cultural* secur*.tw,kf.	8
17	19	cultural humility.tw,kf.	11
18			
19	20	cross-cultural.tw,kf.	357
20	21	cultural* respect*.tw,kf.	8
21			
22	22	anti-racis*.tw,kf.	9
23	23	antiracis*.tw,kf.	1
24	24	postcolonial*.tw,kf.	1
25			
26	25	colonial*.tw,kf.	34
27	26	or/10-25	1413
28			
29	27	exp Health Personnel/	10279
30	28	"Attitude of Health Personnel"/	2059
31	29	"Internship and Residency"/	1373
32			
33	30	((health* or medical or nurs* or hospital) adj2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*)).tw,kf.	31086
34			
35	31	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*).tw,kf.	147680
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41	32	or/27-31	169128
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43	33	Education/	608
44	34	curriculum/	1584
45	35	competency-based education/	89
46			
47	36	exp education, professional/	5404
48	37	exp Inservice Training/	835
49			
50	38	exp Teaching/	4681
51	39	exp Teaching Materials/	4501
52			
53	40	exp Health Personnel/ed [Education]	16
54	41	cultural competency/ed	0
55	42	Transcultural Nursing/ed [Education]	0
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3 43 exp Culture/ed [Education] 1  
4 44 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
5 seminar\*).tw,kf. 196173  
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7 45 (professional development or staff development).tw,kf. 475  
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9 46 or/33-45 200177  
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11 47 9 and 26 and 32 and 46 47  
12 48 limit 47 to yr="2021 -Current" 6  
13 49 remove duplicates from 48 6  
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### APA PsycInfo <1806 to May Week 2 2022>

18  
19 1 exp indigenous populations/ 15198  
20 2 tribes/ 1259  
21 3 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
22 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
23 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
24 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
25 amerindien\* or indigene\*).tw. 31755  
26  
27 4 ((indian or indians) not india).tw. 15700  
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29 5 1 or 2 or 3 or 442412  
30  
31 6 cultural sensitivity/ 7916  
32  
33 7 cultural\* competenc\*.tw. 5610  
34  
35 8 cultural\* safe\*.tw. 369  
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37 9 cultural awareness.tw. 1291  
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39 10 cultural\* sensitiv\*.tw. 6987  
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41 11 cultural\* secur\*.tw. 29  
42  
43 12 cultural humility.tw. 482  
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45 13 cross-cultural.tw. 37152  
46  
47 14 cultural\* respect\*.tw. 101  
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49 15 anti-racis\*.tw. 836  
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51 16 antiracis\*.tw. 650  
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53 17 postcolonial\*.tw. 2067  
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55 18 colonial\*.tw. 6809  
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57 19 or/6-18 62234  
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59 20 exp health personnel attitudes/ 25839  
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61 21 medical residency/ 4825  
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63 22 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
64 or worker\* or staff or specialist\* or employee\*)).tw.122311

23 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
 24 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
 25 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
 26 pharmacist\* or dietician\* or medic\* resident\*).tw. 579592  
 27 20 or 21 or 22 or 23 654864  
 28 education/ 40342  
 29 curriculum/ or curriculum development/ 34802  
 30 exp continuing education/ or professional development/ 26018  
 31 educational programs/ or educational program evaluation/ or multicultural education/  
 32 36396  
 33 personnel training/ or sensitivity training/ 11256  
 34 training/ or communication skills training/ or sensitivity training/ 27011  
 35 exp teaching/ 131059  
 36 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
 37 seminar\*).tw. 1241080  
 38 (professional development or staff development).tw. 27110  
 39 or/25-33 1267277  
 40 5 and 19 and 24 and 34 599  
 limit 35 to (chapter or "column/opinion" or "comment/reply" or editorial or letter or  
 review-book or review-media or review-software & other) 96  
 35 35 not 36 503  
 36 limit 37 to english language 484  
 37 limit 38 to up=20210308-20220512 41  
 38 remove duplicates from 39 41

### CINAHL Search History

Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete

#	Query	Limiters/Expanders	Results
S31	S29 AND S30	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	109
S30	EM 20210308-20220512	Expanders - Apply equivalent subjects	474,059

		Search modes - Boolean/Phrase	
S29	S22 OR S26	Limiters - English Language Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	1,304
S28	S27	Search modes - Boolean/Phrase	1,173
S27	S22 OR S26	Limiters - Published Date: 20060101- 20181231; English Language Search modes - Boolean/Phrase	709
S26	S6 AND S25	Search modes - Boolean/Phrase	95
S25	S23 OR S24	Search modes - Boolean/Phrase	1,087
S24	(MH "Cultural Safety/ED")	Search modes - Boolean/Phrase	38
S23	(MH "Cultural Competence/ED")	Search modes - Boolean/Phrase	1,049
S22	S6 AND S12 AND S17 AND S21	Search modes - Boolean/Phrase	1,144
S21	S18 OR S19 OR S20	Search modes - Boolean/Phrase	1,285,878
S20	(professional development or staff development)	Search modes - Boolean/Phrase	73,618
S19	(training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*)	Search modes - Boolean/Phrase	1,144,026

S18	(MH "Education") OR (MH "Curriculum+") OR (MH "Education, Competency-Based") OR (MH "Teaching") OR (MH "Teaching Materials+") OR (MH "Teaching Methods+")	Search modes - Boolean/Phrase	293,141
S17	S13 OR S14 OR S15 OR S16	Search modes - Boolean/Phrase	1,524,544
S16	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*)	Search modes - Boolean/Phrase	1,220,148
S15	((health* or medical or nurs* or hospital) N2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*))	Search modes - Boolean/Phrase	375,539
S14	(MH "Attitude of Health Personnel+")	Search modes - Boolean/Phrase	114,454
S13	(MH "Health Personnel+")	Search modes - Boolean/Phrase	627,401
S12	S7 OR S8 OR S9 OR S10 OR S11	Search modes - Boolean/Phrase	51,961
S11	cultural* competenc* or cultural* safe* or cultural awareness or cultural* sensitiv* or cultural* secur* or cultural humility or cross-cultural or cultural* respect* or anti-racis* or antiracis* or postcolonial* or colonial*	Search modes - Boolean/Phrase	31,303
S10	(MH "Cultural Diversity") OR (MH "Cultural Values")	Search modes - Boolean/Phrase	24,283
S9	(MH "Transcultural Care")	Search modes - Boolean/Phrase	3,296
S8	(MH "Cultural Safety")	Search modes - Boolean/Phrase	778

S7	(MH "Cultural Competence")	Search modes - Boolean/Phrase	11,142
S6	S1 OR S2 OR S5	Search modes - Boolean/Phrase	55,137
S5	S3 NOT S4	Search modes - Boolean/Phrase	12,493
S4	(MH "India")	Search modes - Boolean/Phrase	42,378
S3	TI ( (indian or indians) ) OR AB ( (indian or indians) )	Search modes - Boolean/Phrase	22,181
S2	(Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*)	Search modes - Boolean/Phrase	47,753
S1	(MH "Indigenous Peoples+") OR (MH "Health Services, Indigenous") OR (MH "Indigenous Health")	Search modes - Boolean/Phrase	23,870

## ProQuest Search Strategy

### Search Strategy

Set#	Searched for	Databases	Results
S1	noft((Aborigin* OR Indigenous OR Eskimo* OR Inuit* OR Inuk* OR Metis OR First Nations OR First Nation OR 1st nation OR 1st nations OR "Native Canadian*" OR "Native American*" OR Maori* OR "Pacific Islander*" OR "American Indian*" OR Amerindian* OR "Native Alaska*" OR "Alaska Native*" OR "Native Hawaiian*" OR "Torres Strait Islander*" OR "on-reserve" OR "off-	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	7452

	reserve" OR tribal OR autochtone* OR amerindien* OR indigene*) AND la.exact("English") AND pd(>20201231)		
S2	noft(("cultural* competenc*" OR "cultural* safe*" OR "cultural awareness" OR "cultural* sensitiv*" OR "cultural* secur*" OR "cultural humility" OR "cross-cultural" OR "cultural* respect*" OR "anti-racis*" OR antiracis* OR postcolonial* OR colonial*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10129
S3	noft((health* OR medical OR nurs* OR hospital) NEAR/2 (personnel OR provider* OR professional* OR worker* OR staff OR specialist* OR employee*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10349
S4	noft((((doctor* OR physician* OR practitioner* OR nurse* OR clinician* OR hospitalist* OR dentist* OR therapist* OR physiotherapist* OR ("occupational therapist" OR "occupational therapists") OR psychologist* OR psychiatrist* OR counsellor* OR ("social worker" OR "social workers") OR midwi* OR paramedic* OR "emergency medical technician*" OR pharmacist* OR dietician* OR "medic* resident*")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	31501
S5	noft(((training OR education* OR learn* OR teach* OR workshop* OR curricul* OR pedagog* OR seminar* OR "professional development" OR "staff development")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	115033
S6	(S1 AND S2 AND (S3 OR S4) AND S5)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	77

## Bibliography of Indigenous Peoples in North America (EBSCOhost)

### 2 Results

(( ((health\* or medical or nurs\* or hospital) N2 (personnel or provider\* or professional\* or worker\* or staff or specialist\* or employee\*)) ) OR ( (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\* or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or pharmacist\* or dietician\* or medic\* resident\*) ))

AND

( ("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) )

AND

( (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") )

Limit to 2021-2022, English Language, Academic Journals

### Web of Science

Science Citation Index Expanded (SCI-EXPANDED)

Social Sciences Citation Index (SSCI)

93 Results

((TS=("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) AND TS=(training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") AND TS=(Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or amerindien\* or indigene\*) AND TS=("health care" or healthcare or hospital\* or medical or nurses or doctors)))

Timespan: 2021-03-08 to 2022-05-12 (Index Date)



## Supplementary Figure 3

## Well Living House Quality Appraisal Tool

Citation (Title, Author, Date) [INSERT FOR EACH STUDY]

Local Community Relevance of Method and Measures (Score out of 4)

Did the measures of success reflect local Indigenous community understandings of success?	<p>Yes = 2 (look for: outcomes are derived from community members/ are the outcomes reflecting indigenous concepts evidence provided explicitly in the text where did evaluation take place, who collected evaluation data?)</p> <p>Partial = 1 (hints of including local community values/beliefs/knowledge systems in text and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) indicated that success was not defined by the community)</p>
Had methods and tools been tested and validated previously in a similar Indigenous context and reviewed for relevance by appropriate community members?	<p>Yes = 2 (evidence is provided explicitly in text)</p> <p>Partial = 1 (hints of using a tool that has been used in Indigenous contexts and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) said that the evaluation method/tool has not been used in Indigenous contexts)</p>

Rigour and internal validity of the evaluation method (Score out of 4)

Do the quantitative or qualitative methods meet relevant rigour and internal validity?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p>Generally: Is the study design appropriate for evaluation research question(s)? Are the conclusions supported and justified by the results?</p> <p><u>Quantitative</u>: Is the sample size described and justified? Are the instruments/tools already validated?</p> <p>Are threats to validity addressed (such as confounding factors)?</p> <p><u>Qualitative</u>: Are the participants selected using appropriate strategies (such as purposive sample or until saturation is reached)? Is there clearly articulated theoretical approach/methodology/ data collection methods and analytic lens – do these fit together? Is there evidence of truthfulness of the findings?</p>
--	--

Strength of the Evidence (score out of 4)

Is the evidence strong?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p><u>Quantitative</u>: Does the evidence have adequate power and statistical significance? Is the response rate reasonable?</p> <p><u>Qualitative</u>: Are there major and convincing themes from triangulation, and/or member checking?</p>
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Total Score:



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	pg.1
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 1-2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 1-3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5-6
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplement 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 6-7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 7-8
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 7-8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 8-9; Supplemental 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 9 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 9
Study characteristics	17	Cite each included study and present its characteristics.	pg. 9-14
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 14
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 14-17
	23b	Discuss any limitations of the evidence included in the review.	pg. 14-17
	23c	Discuss any limitations of the review processes used.	N/A
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 16-17
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	pg. 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	pg. 23
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 24
Competing interests	26	Declare any competing interests of review authors.	pg. 24
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 23

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi:10.1136/bmj.n71

For more information, visit: [www.prisma-statement.org](http://www.prisma-statement.org).

# BMJ Open

## Systematic review of Indigenous Cultural Safety training interventions for health care professionals in Australia, Canada, New Zealand and the United States.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-073320.R1
Article Type:	Original research
Date Submitted by the Author:	20-Jul-2023
Complete List of Authors:	Hardy, Billie-Jo; University of Toronto - St George Campus, Dalla Lana School of Public Health; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Filipenko, Sam; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Smylie, Diane; Ontario Federation of Indigenous Friendship Centres Ziegler, Carolyn; Unity Health Toronto, Health Sciences Library, St. Michael's Hospital Smylie, Janet; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute; University of Toronto - St George Campus, Dalla Lana School of Public Health
<b>Primary Subject Heading</b>:	Medical education and training
Secondary Subject Heading:	Health policy
Keywords:	EDUCATION & TRAINING (see Medical Education & Training), Health Equity, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Systematic Review

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4 1 **Systematic review of Indigenous Cultural Safety training interventions for**  
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6 2 **health care professionals in Australia, Canada, New Zealand and the**  
7  
8 3 **United States.**  
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11  
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55 21 **KEYWORDS**  
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22 Indigenous health, Education & Training, Health Equity, Health Policy, Quality in Health

23 Care

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25 **WORDCOUNT** 5066

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For peer review only

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4 30 **ABSTRACT**

5  
6 31 **Objective:** To synthesize and appraise the design and impact of peer-reviewed  
7  
8  
9 32 evaluations of Indigenous cultural safety training programs and  
10  
11 33 workshops for health care workers in Australia, Canada, New  
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13  
14 34 Zealand, and/or the United States of America.

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17 35 **Methods:** We completed a systematic review of studies that evaluated the  
18  
19 36 outcomes of educational interventions designed to improve cultural  
20  
21 37 safety, cultural competency, and/or cultural awareness for non-  
22  
23 38 Indigenous adult health care professionals in Australia, Canada,  
24  
25 39 New Zealand, or the United States.

26  
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29  
30 40 We searched key electronic databases and grey literature from  
31  
32 41 January 1, 2006 to May 12, 2022. Our team of Indigenous and allied  
33  
34 42 scientists tailored existing data extraction and quality appraisal tools  
35  
36 43 with input from Indigenous health service partners. We synthesized  
37  
38 44 results using an iterative narrative approach.

39  
40  
41  
42  
43 45 **Results:** 2,442 unique titles and abstracts met screening criteria. 13 full texts  
44  
45 46 met full inclusion and quality appraisal criteria. Study designs,  
46  
47 47 intervention characteristics, and outcome measures were  
48  
49 48 heterogenous. Nine studies used mixed methods, two used  
50  
51 49 qualitative methods, and two used quantitative methods. Training  
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4 50 participants included nurses, family practice residents, specialized  
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6 51 practitioners and providers serving specific subpopulations.  
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9 52 Theoretical frameworks and pedagogical approaches varied across  
10  
11 53 programs, which contained overlapping course content. Study  
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13  
14 54 outcomes were primarily learner-oriented, and focused on self-  
15  
16 55 reported changes in knowledge, awareness, beliefs, attitudes, and/or  
17  
18  
19 56 the confidence and skills to provide care for Indigenous peoples. The  
20  
21  
22 57 involvement of local Indigenous communities in the development,  
23  
24 58 implementation, and evaluation of the interventions was limited.  
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27 59 Conclusion: There is limited evidence regarding the effectiveness of specific  
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29  
30 60 content and approaches to cultural safety training on improving non-  
31  
32 61 Indigenous health professionals' knowledge of and skills to deliver  
33  
34  
35 62 quality, non-discriminatory care to Indigenous patients. Future  
36  
37 63 research is needed that advances the methodological rigour of  
38  
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40 64 training evaluations, is focused on observed clinical outcomes, and  
41  
42  
43 65 is better aligned to local, regional, and/or national Indigenous  
44  
45 66 priorities and needs.  
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51 68 **SYSTEMATIC REVIEW REGISTRATION** Not Applicable  
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54 69

## 70 STRENGTHS AND LIMITATIONS OF THIS STUDY

- 71
- 72 • Our systematic review built upon existing tailored Indigenous systematic review  
73 methodologies to implement a method aimed at optimizing relevance for Indigenous  
74 peoples by ensuring that their expertise and knowledge was centred throughout the  
75 project.
  - 76 • Our systematic review applied data extraction and appraisal tools that were designed  
77 and implemented in partnership with Indigenous community partners.
  - 78 • The review is limited to ICS programs with evaluations that have been published in  
79 the peer review and grey literature and as such, may not have captured the true  
80 breadth of existing Indigenous cultural safety training programs and related  
81 evaluations.
  - 82 • The review is limited to interventions directed towards health care providers.

## 84 INTRODUCTION

85 Colonization has long been recognized by Indigenous peoples from around the world as  
86 a cross-cutting and foundational determinant of Indigenous/non-Indigenous health  
87 disparities.(1) More recently, a series of apologies by world leaders has enhanced general  
88 societal awareness of anti-Indigenous colonial injustices, abuses, and harms.(2-5)  
89 Simultaneously, a rapidly growing body of academic scholarship clearly demonstrates

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3  
4 90 ongoing, widespread, and harmful anti-Indigenous colonial policies and practices that are  
5  
6 91 rooted in racist ideologies of white supremacy.(6-12)  
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9 92  
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11 93 Common manifestations of persistent colonialism include the emergence of deeply rooted  
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14 94 negative anti-Indigenous stereotyping and assumptions in micro level social interactions,  
15  
16  
17 95 organizational design, and social architecture.(10, 13, 14) In healthcare contexts, this  
18  
19 96 includes: racist contamination of the healthcare provider-Indigenous patient interface;  
20  
21  
22 97 organizational level barriers to equitable Indigenous health services access; and  
23  
24 98 Indigenous/settler imbalances in the distribution of health and social resources.(10, 13,  
25  
26  
27 99 15) Social media and linked public reporting have begun to expose the life-threatening  
28  
29  
30 100 severity of explicit attitudinal anti-Indigenous racism but there can be resistance to  
31  
32 101 acknowledging the underlying challenges of ongoing implicit and system level failures.  
33  
34  
35 102 For example, Joyce Echequan was able to record the anti-Indigenous racist  
36  
37 103 disparagement she experienced from healthcare staff when seeking treatment for a life-  
38  
39  
40 104 threatening illness at the Lanaudiere hospital in Joliette, Quebec immediately prior to her  
41  
42  
43 105 death.(16) The behaviours of the individual providers were widely regarded as grossly  
44  
45 106 unacceptable following media reporting. However, the Premier of Quebec refused to  
46  
47  
48 107 acknowledge the role of systemic racism in Joyce's death.(17)  
49  
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51 108  
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53 109 Multiple studies have demonstrated that implicit race preference bias is common among  
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56 110 health care providers,(18) even when they explicitly express anti-racist values and  
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4 111 attitudes.(19) Further, implicit race preference bias has been linked to differential  
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6 112 application of clinical practice guidelines, with non-adherence disproportionately  
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8  
9 113 impacting socially excluded racialized and ethnic patient populations.(20)

10  
11 114  
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13  
14 115 Not surprisingly, given the broad scope and injurious impacts of anti-Indigenous racism,  
15  
16 116 its interruption in healthcare contexts has emerged as a priority for Indigenous and allied  
17  
18  
19 117 policymakers, practitioners, and researchers. Of the Truth and Reconciliation  
20  
21  
22 118 Commission of Canada's seven Calls to Action in the domain of health, two address the  
23  
24 119 need to provide "cultural competency" training for healthcare providers.(21) These policy  
25  
26  
27 120 recommendations have been accompanied by a rapid growth of interventions designed  
28  
29  
30 121 to interrupt anti-Indigenous racism, primarily through educational interventions for  
31  
32 122 healthcare providers and trainees.(22,23) Upon engagement with this literature,(22) it  
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34  
35 123 became apparent to our team that the approach, content, and evaluations of existing  
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38 124 cultural competency trainings vary widely. It was unclear which training approaches and  
39  
40 125 strategies were most effective, especially with respect to improving disparities in clinical  
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43 126 outcomes.

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45 127  
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47  
48 128 In order to address these knowledge gaps, we conducted a systematic literature review  
49  
50  
51 129 focused on the design and impacts of existing Indigenous cultural safety and competency  
52  
53 130 training interventions. The primary aim of this review was to identify, appraise and  
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56 131 synthesize the design and impacts of these educational interventions on non-Indigenous

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4 132 health care professionals' knowledge, attitudes, and practices. The secondary aim was  
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6 133 to investigate whether specific training approaches, strategies, formats, or educational  
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9 134 content were more successful, and if yes, for whom and in what ways. To help manage  
10  
11 135 heterogeneity, we restricted this review to Indigenous specific educational interventions  
12  
13  
14 136 in Australia, Canada, New Zealand, and the United States. These globally affluent  
15  
16 137 countries share both relatively well-resourced health and social service systems and  
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18  
19 138 history of European colonization that continues to negatively impact the health and  
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22 139 wellbeing of First Peoples, including equitable access to these service systems.  
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## 27 141 **METHODS**

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29  
30 142 The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)  
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32 143 2020 statement was used to guide our literature review and reporting.(24) Supplementary  
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34  
35 144 Figure 1 documents the process of article screening for inclusion in our analysis. Tables  
36  
37  
38 145 1 and 2 summarize key aspects of the included studies: intervention content; participants;  
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40 146 evaluation methods; and study outcomes.  
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**Table 1. Summary of Interventions**

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute online PowerPoint presentation and YouTube video	Online module(s)	Online	Cultural knowledge, spirituality, and beliefs; professional practice issues; interpersonal communication skills	Emergency Department healthcare providers and staff (n=6)
Barnabe C., et al.	2021	Canada	Phase I: half-day workshop, and Phase II: full day workshop (6 months later)	Online module(s); interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; oppressive and racist policies, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	2020	New Zealand	2 self-paced online modules	Online module(s); self-learning tools; personal reflections	Online	Family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour workshops over 6 weeks	Didactic lecture; interactive group discussions, reflections, and experiential exercises; personal reflections	Clinical	Cultural knowledge and ideology	Emergency Department: nursing, clinical and allied health staff (n=48)
Crowshoe L., et al.	2018	Canada	Full day (8 hours) workshop	Interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)

1	Hinton R., et al.	2014	Australia	3 full-day workshops over 2 months	Didactic lecture; interactive group discussions, reflections, and experiential exercises; self-learning tools	Clinical	Specific health focus	Clinical and Allied Health Staff (n=21)
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6	Hulko W., et al.	2021	Canada	8-10 hours of online training over 8-10 weeks, and a full day Storytelling Session and Talking Circle with an Elder	Online module(s); story telling and talking circles; knowledge quiz; personal reflections	Online and classroom	Indigenous diversity; family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; specific health focus	Nurses (n=38)
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15	Kerrigan V., et al.	2020	Australia	Full day (7 hours) workshop	Didactic lecture; interactive group discussions, reflections, and experiential exercises	Clinical	Cultural knowledge, spirituality, and beliefs; past policies and practices; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
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21								
22	Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
23								
24								
25	Liaw S-T., et al.	2015	Australia	Half day workshop, case study toolkit, and cultural mentors	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	Clinical practice - solo physician/groups (n=10)
26								
27								
28	Liaw S-T., et al.	2019	Australia	Half day workshop, case study toolkit, and cultural mentor	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	General practice clinics (n=56); general practitioner physicians (n=334); practice managers (n=56); practice nurses (n=93)
29								
30								
31								
32	Sauvé A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
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37	Wheeler A., et al.	2021	Australia	1.5 hour online module, and a full day in-person workshop (2-3 weeks later)	Online module(s); interactive group discussions, reflections, and experiential exercises; personal reflections	Online and classroom	Health disparities; professional practice issues; interpersonal communication skills	Pharmacists (n=39)
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**Table 2. Summary of Evaluation and Outcomes**

Citation	Study design	Method	Tool(s)	Reported Outcome(s)
Barajas J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); free-text questions; Experience survey	Significant change in knowledge, skills, and approach to social and cultural factors. Intervention was reported as being relevant and meeting expectations.
Brewer K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI people. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Participant observations. Intervention satisfaction survey	Onsite satisfaction evaluation; observations of participant engagement with content on day; online survey	Significant improvement in knowledge, skills, awareness, confidence, and approach to patient care. Strong agreement that the workshop met objectives and expectations.
Hinton R., et al. 2014.	Mixed methods, action-oriented	File audit	2009 vs. 2011 audit of inpatient files	Some improvements to the quality of recovery-oriented care, as shown through an increase in recording client social history, family issues, and cultural factors.
Hulko W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, knowledge quizzes, and case study care planning. Talking Circles.	Approaches to Dementia Questionnaire; Indigenous Cultural Competency Knowledge Quiz; care plans for "Alice;" Talking Circle transcripts	Improvement in the knowledge, skills, and values of the nurse participants. Storytelling sessions were reported as being effective at building capacity.



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Kerrigan V., et al. 2020.	Mixed methods	Post-survey	Likert-scale questions on Quality of Training; free-text questions	Provided good to excellent information provided on all topics. Participants wanted further and more specific cultural education opportunities.
Kerrigan V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention interviews	Cultural Quotient questionnaire; file audit of health checks and clinical risk factors managed; follow-up interviews with staff, cultural mentors, and patients	Clinical practices improved their readiness to provide culturally appropriate care. Individual clinic staff improved their cultural strategic thinking.
Liaw S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	Cultural Quotient questionnaire; audit of rates of healthcare claims and chronic disease risk factors.	No significant change in Indigenous health check rates or cultural quotient scores.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); additional adapted questions; acceptability survey	Significant improvement in cultural capability, confidence, and skills. Significant change in motivation to improve health outcomes for Indigenous patients and reduce barriers. Acceptability of the intervention and perceived value-add to participant practice.

view only

## 150 **Search strategy**

151 Consistent with the search methods outlined in the Cochrane Handbook for systematic  
152 reviews,(25) an Information Specialist (CZ) conducted database searches in Ovid  
153 Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials,  
154 Cochrane Database of Systematic Reviews, Bibliography of Indigenous People in North  
155 America, Applied Social Sciences Index & Abstracts, ERIC (Education Resources  
156 Information Center), International Bibliography of the Social Sciences, ProQuest  
157 Dissertations & Theses Global, Sociological Abstracts, and Web of Science's Social  
158 Sciences Citation Index and Science Citation Index. Search strategies were adapted for  
159 each database and used a comprehensive combination of subject headings and  
160 keywords for the concepts of Indigenous people, cultural competence and health  
161 professionals' education. Databases were searched for English language records from  
162 2006 to May 12, 2022 (based upon the emergence of literature describing and evaluating  
163 Indigenous cultural safety interventions) and uploaded into Colandr.(26) The reference  
164 lists of seminal texts and review articles were then reviewed for additional records. An  
165 additional 3 articles were identified for study inclusion. For the detailed search strategies  
166 see Supplementary Figure 2.

## 168 **Study screening**

169 Two independent reviewers screened all title and abstracts for full text review using the  
170 following inclusion criteria:

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4 171 (1) Study specific to Indigenous contexts in what is now known as Australia, Canada,  
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6 172 New Zealand, and/or the United States of America;

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9 173 (2) Study describes educational interventions (workshops, training, coursework,  
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11 174 community visits, etc.) designed/implemented to improve cultural safety, cultural  
12  
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14 175 competency, and/or cultural awareness;

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17 176 (3) Educational intervention focused on a majority of non-Indigenous adult participants  
18  
19 177 health care professionals who provide services (e.g., health or social services) to  
20  
21  
22 178 Indigenous peoples.

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24 179  
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26  
27 180 Full texts were obtained for all studies that passed this title and abstract screening stage  
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30 181 and in the event that there was not enough information in the abstract to determine  
31  
32 182 inclusion according to these 3 criteria.

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35 183  
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37 184 Three researchers collaborated on full-text screening and further eliminated articles that  
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40 185 upon full reading, did not meet the primary inclusion criteria and two secondary inclusion  
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43 186 criteria: (i) detailed information about the educational intervention's design and  
44  
45 187 implementation; (ii) defined evaluation outcomes. As per our inclusion criteria, we  
46  
47  
48 188 excluded studies in which the majority of the learners were Indigenous and/or the focus  
49  
50  
51 189 of the intervention was at the organizational versus health care provider level. We  
52  
53 190 additionally excluded train-the-trainer interventions in which the participants were not

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4 191 directly providing health services. Our two phased screening protocol is available as  
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6 192 Supplementary File 1.  
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## 10 11 194 **Data Abstraction and Quality Appraisal**

12  
13  
14 195 Three researchers collaborated on data abstraction across the following categories:  
15  
16 196 study methods (design, evaluation methods and tools, participants,  
17  
18  
19 197 sampling/recruitment), study population, sampling and recruitment methods, educational  
20  
21  
22 198 intervention design (pedagogy, content, modifications) and outcomes (individual and  
23  
24  
25 199 system level).  
26

27 200 Two independent reviewers completed preliminary data abstraction and the lead author  
28  
29  
30 201 (BJH) subsequently reviewed all abstractions and finalized Tables 1-4. The lead and  
31  
32  
33 202 senior authors (BJH, JS) independently appraised methodological quality using a tailored  
34  
35 203 version of the Well Living House quality appraisal tool (WLHQAT)(27-29) (Supplementary  
36  
37  
38 204 Figure 3) and subsequently met to discuss and reach consensus on scores (Table 3).  
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40 205 WLHQAT includes three equally weighted assessment domains: local Indigenous  
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43 206 community relevance of methods; rigor and validity; and strength of evidence and has a  
44  
45  
46 207 maximum total score of 12. Studies with a total score of <7 were not included in the full  
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48  
49 208 synthesis. The interdisciplinary nature of included studies added complexity to the quality  
50  
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52 209 appraisal, in that the research team, study design, concepts and priorities, data collection,  
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55 210 and measures were wide-ranging.  
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**Table 3: Well Living House Quality Appraisal Scores**

Citation	Scoring Range 1-3 / 4-6 / 7-9 / 10-12
Barajas J. 2021	7-9
Barnabe C., et al. 2021.	7-9
Brewer K., McCann C., & Harwood M. 2020.	7-9
Chapman R., Martin C., & Smith T. 2014.	7-9
Crowshoe L., et al., 2018.	7-9
Delbridge R., et al., 2018	4-6
Durey A., et al., 2017	4-6
Hinton R., et al. 2014.	7-9
Hulko W., et al. 2021.	7-9
Kerrigan V., et al., 2020.	7-9
Kerrigan V., et al., 2022.	7-9
Liaw S-T., et al. 2015.	10-12
Liaw S-T., et al. 2019.	10-12
McMichael B., et al., 2019	4-6
Sauvé A., Cappelletti A., & Murji L. 2022.	7-9
Wheeler A., et al. 2021.	7-9

215

**Table 4 : Summary of Indigenous Involvement in Curriculum Development, Curriculum Delivery and Evaluation/Research Activities**

Citation	Study Design	Curriculum Development	Curriculum Delivery	Curriculum Evaluation	Study Analysis	Dissemination	Positionality
Barajas J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed

217

218 **Synthesis**

219 We applied an iterative narrative approach to our synthesis.(30) This method was a good  
220 fit with the heterogeneity of study designs and outcomes and our secondary aim to  
221 understand which specific training approaches were impactful for whom and in what  
222 ways. In addition to our primary aim of identifying, summarizing, and assessing the  
223 design and outcomes of existing published evaluations of Indigenous cultural safety  
224 education programming for health care professionals, we were particularly interested in  
225 documenting underlying pedagogies, instructional strategies, formats, and content and  
226 how these might be related to program success across participant groups and contexts.  
227 We were also interested in the involvement of Indigenous instructors and Indigenous  
228 communities and how this might have contributed to program success.

229

230 The lead author led the synthesis of study design, participants, quality, and outcomes,  
231 drawing on data abstraction and with regular input from the other authors. Refinement of  
232 secondary narratives regarding (i) the role of underlying pedagogies and (ii) Indigenous  
233 instructor and community involvement was achieved through iterative discussion of  
234 independently identified themes among the authorship team followed by in depth re-  
235 examination of the included studies by the first author.

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4 237 Throughout the analysis, we applied a critical decolonizing lens where we intentionally  
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6 238 centered the distinct and diverse knowledges and strengths present in Indigenous  
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9 239 communities' practices of health and wellbeing.(31-34) The authors sought to  
10  
11 240 acknowledge and critique the systemic power dynamics that so often inform existing  
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14 241 health program evaluation models, particularly when applied to oppressed populations,  
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16 242 including Indigenous peoples in what is now known as Australia, Canada, New Zealand  
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18  
19 243 and the United States. In so doing, we drew upon the foundational Indigenous principles  
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22 244 of relationships, reciprocity, responsibility, respect, and relevance (known as the 5  
23  
24 245 R's),(35-36) and applied our decolonizing approach to our consideration and analysis of  
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27 246 the inclusion (or lack thereof) of Indigenous knowledges and practices in the evaluation  
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30 247 of identified studies. Research that looks to learn about Indigenous experiences of health  
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32 248 programs and policies requires acknowledging the unique and distinct relations and  
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35 249 interconnections held by Indigenous peoples that are so often decontextualized through  
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38 250 the application of Western methodologies.(27) In keeping with our decolonizing  
39  
40 251 approach, it is important for us to self-locate the authorship team as comprised of two  
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43 252 Indigenous women (JS, DS), one racialized settler ally (BJH), and two non-racialized  
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45 253 settler allies (SF, CZ).

254

## 255 **Patient and Public Involvement**

256 We did not involve patients or the public in the design, or conduct, or reporting, or  
257 dissemination plans of our research.



258

## 259 RESULTS

### 260 Literature search

261 The literature search strategy resulted in 2,442 citations (following removal of any  
262 duplicates), from which 2,250 were deemed ineligible based on title and abstract  
263 screening. 192 articles were selected for full text review from which 176 were excluded  
264 based on the primary inclusion criteria (n=147) or secondary inclusion criteria (n=29).  
265 (Supplementary Figure 1) We were left with 16 unique studies that described and  
266 evaluated Indigenous cultural safety training for health professionals and were deemed  
267 eligible for full synthesis inclusion.(37-52) (Table 3)

268

### 269 Quality Appraisal

270 Among the 16 studies that were included, 3 scored <7 on the WLHQAT.(42, 43, 50) (Table  
271 3) These studies were excluded from the synthesis. Lower scores reflected a combination  
272 of the following: limited, to no involvement of Indigenous community partners in the  
273 evaluation; inadequate sample size and/or lack of participant uptake and/or retention in  
274 the evaluation; and/or weak evaluation study design.(43,50) For instance, a low score  
275 could reflect that Indigenous scholars or community members were involved in the design  
276 and/or delivery of the training program but not in the design and/or implementation of the  
277 evaluation. Another study did not triangulate their qualitative study results.(42)

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6 279 **Study and population characteristics**

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9 280 The 13 analyzed studies were published between 2014 – 2022. The majority (n=7) were  
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11 281 conducted in Australia.(40, 44, 46-49, 52) A smaller number (n=4) took place in  
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14 282 Canada.(38, 41, 45, 51) Of the last two studies, one (n=1) was conducted in the United  
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16 283 States (US)(37) and the other (n=1) was conducted in New Zealand (n=1).(39)

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22 285 Evaluation design varied widely. Nine of the studies (n = 9) applied mixed methods (37-  
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24 286 38, 41,44-46, 48-49, 52) including various combinations of surveys, open ended  
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27 287 questions, semi-structured interviews, and talking circles. One of these was a  
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30 288 randomized trial that incorporated a participatory action research approach, in which the  
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32 289 research team cooperated with the communities, supporting institutions and  
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35 290 participants.(49) Two (n=2) studies were qualitative.(39,47) Another two (n=2) were  
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38 291 quantitative.(40,51) Eight studies (n=8) incorporated pre/post intervention surveys.(38,  
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40 292 40-41, 45, 48-49, 51-52) Six of the studies (n=6) incorporated some measure of longer-  
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43 293 term impact as part of the evaluation with varied follow-up periods: across 3 years(44);  
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45 294 12 months(49); 6 months(39,48); and 3 months.(38,41) The remainder of the studies  
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48 295 (n=7) collected post intervention data immediately following the intervention. One  
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51 296 intervention was described and evaluated across multiple publications as part of a larger  
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53 297 research program.(48-49) Most (n=10) but not all of the studies, provided access to-  
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56 298 and/or a detailed description of their evaluation tools.(37-41, 44, 48-49, 51-52) Of the

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4 299 eleven studies that used survey tools, eight employed previously validated evaluation  
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6 300 tools,(38, 40-41, 45, 48-49, 51-52) two of these, although validated, were adapted by the  
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9 301 research team.(41,51)

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14 303 Sample sizes varied widely, ranging from 6 to 621, and studies took place in various  
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16 304 settings. The majority (n=8) occurred in clinical settings and the remainder were either  
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19 305 online (n=3) or a mix of online and in a classroom (n=2). Three of the studies (n=3)  
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22 306 recruited specialized practitioners: rheumatologists(38), pharmacists(52), and speech  
23  
24 307 language therapists(39). One study recruited only family medicine residents(51) whereas  
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26  
27 308 another focussed on nurses.(45) Four of the studies (n=4) delivered interventions tailored  
28  
29  
30 309 to providers serving a specific health service user population: arthritis(38), psychiatric  
31  
32 310 care and mental health(44); residential care(45), and Māori adults with aphasia.(39)

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35 311  
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37 312 **Reported Impacts of Indigenous Cultural Safety Education or Training**  
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40 313 Study outcomes were almost exclusively learner focused (n=10) and included learner  
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43 314 self-reports regarding: quality of the learning experience; changes in knowledge or  
44  
45 315 awareness; shifts in beliefs; attitudes regarding Indigenous peoples and their care  
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48 316 experiences; and/or confidence and skill to care for Indigenous peoples.(37-41,45-47,51-  
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50  
51 317 52) (Table 2) A subset of learner focused studies (n=4) included measures of self-  
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53 318 reported changes in practice.(38-39, 45, 47) These impacts were assessed using proxy  
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56 319 measures of clinical behaviour including post-intervention interviews with

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4 320 learners,(39,47) or through the use of scenarios(38) or vignette-based care plans.(45)  
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6 321 Although many of the studies reported significant changes in participants' attitudes,  
7  
8  
9 322 knowledge and awareness, these findings were tempered by limitations in study design  
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11 323 and implementation, such as self-selection bias,(38-40, 45-47, 51-52) small sample size,  
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13  
14 324 low uptake and retention,(37-39, 41, 47, 51-52) the lack of randomization and/or controls  
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16 325 (all, except for(49)) and potential social desirability response bias.(39) Conclusions  
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19 326 regarding sustained impact over time, were limited by a paucity of studies (n=6) that  
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22 327 included longitudinal measurements.(38-39, 41, 44, 48-49)  
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25 328  
26  
27 329 Few studies reported on clinical outcomes, and most were based on self-assessments  
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29  
30 330 (n=4) as described above.(38-39, 45, 47) Three studies described externally-assessed,  
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33 331 patient-based practice outcomes through the use of file audits(44, 48-49) and qualitative  
34  
35 332 interviews with patients at the participating clinics.(48) Of note, the one study that  
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38 333 included a randomized control and externally assessed, patient-based practice outcomes  
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40 334 did not demonstrate any significant intervention impact.(49)  
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45 336 Terminology varied widely across the studies, a phenomenon that has already been  
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48 337 described elsewhere by Curtis et al(53) as negatively impacting the quality of the  
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51 338 evaluations and the ability to draw evidence-based comparisons. Some studies referred  
52  
53 339 to cultural safety(37, 39, 45, 47) while others used terms such as: cultural awareness,(46)  
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56 340 cultural security,(44) cultural respect,(48-49) cultural competency(39-41), cultural  
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4 341 humility,(38) cross-cultural education and cultural capability,(52) and intercultural  
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6 342 empathy.(51) A few studies relied upon proxy measures to assess cultural safety. For  
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9 343 example, Crowshoe et al(41) described an increase in learners' "confidence" as a proxy  
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11 344 for cultural safety. Kerrigan et al(46) focused on behaviour change and self-reported  
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14 345 aspiration as indicative of positive clinical outcomes, and noted that although "it was  
15  
16 346 impossible to assess" whether their intervention shifted behaviour, they could "surmise  
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19 347 that health professionals aspire to transfer learning to the workplace."((46) p7) Similarly,  
20  
21  
22 348 in a later paper, Kerrigan and colleagues(47) suggested, based upon post intervention  
23  
24 349 interviews with learners, that "[D]octors changed behaviour in relation to building rapport  
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26  
27 350 with patients, asking patients questions, working with Aboriginal interpreters, gaining  
28  
29  
30 351 informed consent."(p13) In conclusion they noted that there is "still a need to assess if  
31  
32 352 training improves patient experience and outcomes"(p14) to determine whether the  
33  
34  
35 353 intervention improved cultural safety.(47) A few authors reflected on the overall  
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38 354 limitations of their findings, suggesting that they were not generalizable and/or that  
39  
40 355 additional research is required.(37, 45-46, 51) Hulko and colleagues(45) indicated that  
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42  
43 356 their intervention and evaluation was based upon Secwepemc ways of knowing and being  
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46 357 and doing and as such could not be scaled up whereas Barajas(37) acknowledged the  
47  
48 358 value of specificity and context and warned against developing and implementing training  
49  
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51 359 programs through a pan-Indigenous approach.

360

## 361 Training approaches and methods

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4 362 Theoretical frameworks and pedagogical approaches were manifold. Studies referenced  
5  
6 363 transformative learning theories(38, 47, 51); social-constructivist frameworks (44);  
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9 364 diffusion of innovation theory(37); a public health framework(39); and, Educating for  
10  
11 365 Equity (E4E)(38, 41). Liaw et al(48-49) describe a trans-theoretical approach in which  
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13  
14 366 they harmonised cultural intelligence frameworks, developments in cultural respect,  
15  
16 367 safety and competence and a review of successful Aboriginal programs alongside  
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18  
19 368 consultation with Aboriginal communities and others. Others (n=4) designed their  
20  
21  
22 369 program with cultural safety and decolonizing philosophies at their core.(39-40, 46-47)  
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24  
25 370 For example, Kerrigan et al(46) place the responsibility for change on the “hegemonic  
26  
27 371 individuals and institutions.”((46) p3) Only one paper explicitly cited critical race  
28  
29  
30 372 theory(47) as a core component. A limited number (n=3) did not cite a conceptual theory  
31  
32  
33 373 or framework and instead reviewed cultural safety, competency and awareness in health  
34  
35 374 care training and the possible benefits related to training programs.(40, 45, 52) Lastly,  
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38 375 some of the training programs applied participatory action approaches or community-  
39  
40 376 based approaches to the development and delivery of the training.(44-45, 47-49)  
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43 377  
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45 378 Participation for all programs was voluntary. Overall, there were similarities in course  
46  
47  
48 379 content across programs. Training delivery modalities varied and included combinations  
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50  
51 380 of online modules, didactic lectures, interactive group discussions, workshops,  
52  
53 381 simulations, and reflections. (Table 1) Only one was delivered as a series of online  
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56 382 podcasts (n=1), an approach which was well-received by learners.(47) Although some in-

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4 383 person trainings (n=3) were delivered by non-Indigenous instructors,(44, 48-49) most  
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6 384 (n=7) were co-delivered/facilitated by a mix of Indigenous and non-Indigenous  
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8  
9 385 facilitators(38, 41, 45, 51) or delivered only by Indigenous facilitator(s)/instructor(s) (Table  
10  
11 386 4).(40, 46, 52) Some of the more innovative approaches incorporated story-telling and  
12  
13  
14 387 talking circles with Elders(45); podcasts developed and voiced by Elders(47); and,  
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16 388 simulation training facilitated with Indigenous community members.(51) Liaw et al.(48-49)  
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18  
19 389 delivered an integrative program, Ways of Thinking, Ways of Doing, which in addition to  
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21  
22 390 a short workshop, participants were also provided with a case study reference toolkit and  
23  
24 391 a cultural mentor.

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29 393 With one exception,(49) all of the training programs reported some level of impact, though  
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31  
32 394 only a few of the authors linked the observed impact to their training approaches and  
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35 395 methods. Some directly attributed action-oriented(44, 48-49) and community-based(37,  
36  
37 396 45, 51) approaches to the impact of the interventions. However, the same authors also  
38  
39  
40 397 noted that the participatory components to the learning materials were not incorporated  
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43 398 consistently (e.g. AIMhi care plans and engagement of Aboriginal Mental Health  
44  
45 399 Workers(44) and cultural mentors(49)). Crowshoe et al(41) suggested that the impact of  
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47  
48 400 their training program was related to “interactive educational techniques and intentional  
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51 401 facilitation strategies”(p54) including a combination of Indigenous and non-Indigenous  
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53 402 facilitators. Notably, this study had a high drop-out rate with less than half of the registered  
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56 403 learners completing the post-survey.(41) Chapman and colleagues,(40) who applied a

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4 404 multi-modal training delivered by an Indigenous trainer, described how the impact of their  
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6 405 training program was limited to significant changes in learners' perceptions whereas  
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8  
9 406 learners' attitudes remained unchanged. Kerrigan and colleagues(47) claimed their  
10  
11 407 online Elder podcast changed both learner attitudes and behaviours among a small,  
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13  
14 408 convenience sample of 14 learners, based on the analysis of semi-structured interviews  
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17 409 post-intervention.

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### 20 21 22 411 **Indigenous community understandings of measures of success**

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24 412 Indigenous cultural safety can only truly be assessed through the lens of Indigenous  
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26  
27 413 patients and communities who ultimately are the recipients of clinical care.(54) It follows  
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29  
30 414 that Indigenous patient and community understandings and measures of success are  
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32 415 critical to assessing the impact of any Indigenous cultural safety training program.  
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35 416 However, the degree of involvement of local Indigenous people and communities in the  
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38 417 development, implementation, and evaluation of the educational interventions was limited  
39  
40 418 overall and differed across the studies. Table 4 (Summary of Indigenous Involvement in  
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43 419 Curriculum Development, Curriculum Delivery and Research Activities) provides a  
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45  
46 420 summary overview. Six out of the thirteen peer reviewed papers included statements  
47  
48 421 describing the ethnic and/or Indigenous identity of the authors. Of these, half (n=3)  
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50  
51 422 covered the entire authorship(37, 45, 47) and the remainder (n=3) limited self-location to  
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53  
54 423 Indigenous co-authors.(38, 41, 46) For the most part, Indigenous individuals and/or  
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56 424 community members contributed to the development and delivery of the curriculum, either  
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4 425 as members of the research team or as local Indigenous community members engaged  
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6 426 through participatory and partnered approaches.  
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11 428 Contributions by local Indigenous communities to study evaluations, were far more  
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14 429 limited, and rarely drew upon health care delivery and/or patient experience. Some  
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16  
17 430 established partnerships with Indigenous run organizations(48-49) whereas others relied  
18  
19 431 upon survey tools that were developed in partnership with Indigenous advisors and  
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21  
22 432 communities,(40, 52) however, these were not always locally informed. Others involved  
23  
24 433 Indigenous Elders in the evaluation process.(45, 47) In these examples, the Elders were  
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27 434 involved in both the development and the evaluation of the curriculum. Lastly, only one  
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30 435 evaluation focused on health care delivery and/or patient experience and included  
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32 436 interviews with Indigenous patients and cultural mentors.(48)  
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## 36 37 438 **DISCUSSION**

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40 439 The rapid growth of Indigenous cultural safety training for health care professionals is  
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43 440 linked to a global movement to interrupt Indigenous/non-Indigenous health inequities,  
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45  
46 441 which are rooted in persistent colonial attitudes and systems, including anti-Indigenous  
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48 442 stereotyping and racism.(15) The majority of the papers included here provide a rich  
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51 443 description of Indigenous cultural safety training program approaches, content, and  
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53 444 implementation. In contrast, analysis and synthesis of the accompanying evaluations of  
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4 445 these same training programs revealed clear and cross-cutting gaps in the demonstration  
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6 446 of clinical and/or system level impacts, even though these are commonly referenced as  
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9 447 desired outcomes. The majority of evaluations were limited in focus to learner  
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11 448 experiences and self-reported practice outcomes. For example, Kerrigan and  
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14 449 colleagues(47); Brewer and colleagues(39) and Barajas(37) all suggested, through their  
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16 450 evaluations, that the training programs resulted in changes in self-reported behaviour and  
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19 451 as such, intention and practice. These outcomes however, are subject to self-reporting  
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21  
22 452 response bias such as social desirability. While many of the studies were able to  
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24  
25 453 demonstrate some level of impact on knowledge and attitudes towards Indigenous  
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27 454 peoples by learners, none of these studies were able to establish an observable impact  
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30 455 with respect to a shift towards more culturally safe and clinical practice guideline adherent  
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32 456 health care for Indigenous patients.  
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### 37 458 **Evidence of shifts in knowledge and attitudes; but evidence-base is limited**

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40 459 Self-reported shifts in knowledge and attitudes regarding Indigenous peoples did improve  
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43 460 across most of the studies.(37-41, 45-47, 51-52) Although limited, two of the studies  
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46 461 suggested that these shifts may be sustained over time.(38-39) However, when  
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48 462 considering the stated impact of these studies, it is also important to take into account the  
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51 463 many limitations inherent in the study design. Evaluation studies relied upon voluntary  
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54 464 self-selection. Sample sizes were generally small and those that were longitudinal  
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56 465 showed significant baseline to post-intervention loss to follow-up. Eight of the thirteen  
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4 466 evaluations involved pre-post assessments involving surveys and/or focus groups.(38,  
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6 467 40-41, 45, 48-49, 51-52) Only one of these included a control group.(49) In addition, only  
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9 468 eight of the studies included validated quantitative surveys that employed scales.(38,40-  
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11 469 41, 45, 48-49, 51-52) As a result, the shifts in knowledge and attitudes can 'at best' be  
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13  
14 470 correlated with the described intervention and are limited by several biases arising from  
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16 471 the dynamics of course evaluation and marking, participant optimism and in some  
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19 472 instances, the lack of anonymity as well as voluntary and low response rates. For the  
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21  
22 473 most part, when the described impact was an observable increase in knowledge or shift  
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24 474 in attitudes, studies also tended to focus on participant experience of the program. These  
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26  
27 475 measures highlight how participants expressed gratitude regarding what they learnt and  
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30 476 spoke to how this might have improved their confidence in working with Indigenous  
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32 477 patients going forward. These shifts in confidence, although surely positive, cannot be  
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35 478 interpreted as evidence of improved quality of care towards Indigenous patients in the  
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37 479 health care system.

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42 481 **Very little evidence of patient focused impacts and no measures of systems-level impact**

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45 482 Cultural safety by definition can only be determined and evaluated by the person receiving  
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48 483 the care and their family,(54) yet only three of thirteen studies included tools designed to  
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51 484 evaluate patient experience: a subset of patient interviews post intervention(48) and  
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53 485 pre/post file audits.(44, 49) Interestingly, Liaw and colleagues saw no impact, and  
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56 486 concluded, that "the lack of effect of the intervention may be attributable to study design

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4 487 limitations, complex and indirect relationship between the intervention and the outcome  
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6 488 measures, or contextual factors that influenced the fidelity of the intervention at the  
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9 489 Medicare Local/PHN level and its ability to achieve measurable changes in the target  
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11 490 behaviours."((49) p267) None of the studies attempted to measure adherence to clinical  
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14 491 practice guidelines, a critical outcome measure which is typically associated with provider  
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16 492 training outcomes and could be evaluated through the use of standardized patients(56-  
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19 493 58), ideally unannounced, or through file audits of clinical care.(59, 60) Kirkpatrick has  
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21  
22 494 argued that it is "difficult, if not impossible to evaluate the impact of training on an  
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24 495 organization due to an inability to separate the variables which could be attributed to other  
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26  
27 496 factors."((55)p59) In this study, we focused on interventions implemented at the level of  
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29  
30 497 the health care provider, however, the approach does not limit the evaluation to individual  
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32 498 level measures, as cultural safety training of health care providers can have  
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35 499 organizational-level impacts. None of the studies evaluated systems-level changes that  
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38 500 may have been associated with individual training. Understanding the networked effect  
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40 501 of how training participants subsequently influence their colleagues will be important  
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43 502 going forward. Hulko and colleagues(45) noted that cultural safety research in general  
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46 503 needs to advance tools that will measure these effects, and noted that organizational  
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48 504 change will require institutional supports and policy changes that encourage health care  
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51 505 professionals to implement culturally safe practices.

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56 507 **Impactful specific training approaches, strategies, formats or content**

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4 508 The application of purposeful, evidence based, pedagogical theory and practices that  
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6 509 advance pre-requisite knowledge, self-awareness and skills is critical to the success of  
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9 510 cultural safety training and education programs. A number of the reviewed studies  
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11 511 described how specific training approaches, formats or content may have contributed to  
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14 512 impact, however, most of the authors were also careful to note the limitations of their  
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16 513 outcomes and the need for further research to clarify whether and if so, how, approach  
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19 514 and content of the training program contributed to the outcomes. Some authors also  
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21  
22 515 described how variation between past and current evaluations of Indigenous cultural  
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24 516 safety, including conceptual frameworks, measurement tools and aims, resulted in an  
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27 517 overall lack of consensus and limited the development of an evidence-base.(39, 46)  
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30 518 Hinton et al(44) spoke to the value of a participatory action-oriented study design that  
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32 519 incorporated institutional leadership as change agents and clinical champions to  
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35 520 encourage recruitment and uptake. This was further supported by Brewer et al.(39) who  
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38 521 observed low uptake and argued that incentives, particularly over the longer term, were  
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40 522 not always effective and that to improve uptake, and consequently evaluation, training  
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43 523 ought to be “compulsory or obligatory” and recommended organizational commitment and  
44  
45 524 team involvement. Implementing mandated training alongside appropriate evaluations  
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48 525 using file audits, simulation and/or standardized patients will undoubtedly require training  
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51 526 and evaluation protocols that address arising concerns of participant health care  
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53 527 professionals.  
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4 529 The evidence was limited as to whether or not inclusion of Indigenous people and  
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6 530 communities contributed to successful outcomes, although a number of the studies  
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9 531 referenced various components, such as Indigenous vodcasts, guest speakers, cultural  
10  
11 532 mentors, and academic lecturers as key to the programs they evaluated. Liaw and  
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14 533 colleagues concluded that the strength of their program may have been resultant from  
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16 534 the inclusion of cultural mentors who, when “working with practice staff in their own  
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19 535 environment, were effective translators of cultural respect theory and knowledge, as  
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21 536 formalized in the toolkit and delivered by the workshop, into practice.”((48) p391) Hinton  
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24 537 and colleagues(44) also made similar observations regarding cultural advisors, who were  
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27 538 involved in the action oriented programming and group sessions.  
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32 540 We acknowledge that classic systematic review methods have been developed outside  
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35 541 of Indigenous contexts, without explicit alignment to Indigenous worldviews, community  
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37 542 requirements, and methodologies. Our team of Indigenous and allied scientists and  
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40 543 Indigenous health service leaders built upon existing tailored Indigenous systematic  
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42 544 review methodologies(27-29) to implement a method aimed at optimizing relevance for  
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45 545 Indigenous peoples through: (1) co- design, co-leadership and co-authorship by leading  
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48 546 Indigenous methods scholars and Indigenous cultural safety educators, ensuring that  
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51 547 their expertise and knowledge was centred throughout the project; (2) direct involvement  
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53 548 of a senior Indigenous scholar and methodologist (JS) in all stages of the review, analysis  
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56 549 and synthesis; (3) application of a data extraction tool developed in consultation with  
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4 550 Indigenous community partners: the Southern Ontario Aboriginal Health Access Centre  
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6 551 (SOAHAC) (Supplementary File 2) and the WLHQAT, a quality appraisal tool that was  
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9 552 designed at an Indigenous-led research centre in partnership with Indigenous community  
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11 553 members.

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14 554 The review is limited to ICS programs with evaluations that have been published in the  
15  
16 555 peer review and grey literature and as such, may not have captured the true breadth of  
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18  
19 556 existing Indigenous cultural safety training programs and related evaluations. To optimize  
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21  
22 557 feasibility and study coherence, we did not include organizational level interventions as  
23  
24 558 for this initial study. Instead, we limited our focus to interventions directed towards health  
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26  
27 559 care providers. We do recognize that it is likely that lasting system-level impacts will  
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29  
30 560 require interventions that are implemented and evaluated at both the individual and  
31  
32 561 organizational levels and would like to highlight the need for additional research focused  
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34  
35 562 on advancing and evaluating system-level interventions. Lastly, the review was  
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37  
38 563 conducted over a lengthy period of time due to the required extensive and iterative  
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40 564 consultation with community partners and Indigenous study team members in the  
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43 565 development and implementation of the final protocol to ensure that we were centering  
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45 566 Indigenous worldviews, experiences, and community considerations.”

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50 568 **CONCLUDING REMARKS**  
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4 569 Overall, there is a paucity of evidence linking existing Indigenous cultural safety training  
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6 570 interventions to enhancements in non-Indigenous health care professionals' knowledge,  
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9 571 culturally safe engagement skills and clinical practice guideline adherence when caring  
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11 572 for Indigenous patients. As researchers and practitioners in this field, we note that these  
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14 573 gaps in rigorous patient-outcome focused scholarship are rooted in systemic limitations  
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16 574 in the resources available to organizations leading this work to carry-out and disseminate  
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19 575 comprehensive and cost-intensive evaluations. This systemic under-resourcing and the  
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21  
22 576 linked implementation of non-evidence based interventions is problematic, inconsistent  
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24 577 with the evidence standards required in other domains of clinical training, and is  
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26  
27 578 commonly associated with the same harmful anti-Indigenous, colonial policies and  
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29  
30 579 practices that training is designed to disrupt. Further research investment, with funds  
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32 580 directed towards Indigenous-led agencies and organizations that are leading the work in  
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34  
35 581 this field, is required to advance training program evaluation design, implementation,  
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37 582 analysis and dissemination to ensure that both the training programs and their evaluations  
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39  
40 583 meets the dual criteria of excellence in Indigenous health research: a) methodological  
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42 584 rigour and b) alignment with and connection to local, regional and /or national Indigenous  
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45 585 priorities and needs.  
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## 50 587 **AUTHORS' CONTRIBUTIONS**

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3  
4 588 JS and DS conceptualized the systematic review. JS made significant contributions to the  
5  
6 589 interpretation of the data. CZ carried out the database literature searches. SF and BJH  
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9 590 screened titles and carried out data extraction. BJH and JS carried out the initial analysis  
10  
11 591 and interpretation of the data and together, generated consensus with SF regarding key  
12  
13  
14 592 themes. DS commented on high level key themes. BJH, SF and JS drafted sections of  
15  
16 593 the manuscript and DS commented on the manuscript in progress. All authors contributed  
17  
18  
19 594 to study design and interpretation of findings, and approved the final manuscript.  
20  
21  
22 595

## 23 24 596 **COMPETING INTERESTS**

25  
26  
27 597 All authors have completed the ICMJE uniform disclosure form at  
28  
29  
30 598 [www.icmje.org/disclosure-of-interest/](http://www.icmje.org/disclosure-of-interest/). BJH, SF and CZ declare no competing interests. JS  
31  
32 599 has no significant competing interests. JS is a sibling of DS. JS and DS are both members  
33  
34  
35 600 of the Indigenous Cultural Safety Learning Series Advisory Circle in Canada, funded by  
36  
37  
38 601 San'yas and co-hosted by the Ontario Federation of Indigenous Friendship Centres. The  
39  
40  
41 602 Indigenous Cultural Safety Learning Series is a webinar series focused on Indigenous  
42  
43 603 cultural safety. It is guided by an Advisory Circle of Indigenous leaders from across  
44  
45  
46 604 Canada. DS was employed by the Southwest Ontario Aboriginal Health Access Centre  
47  
48 605 (SOAHAC) (one of the funding agencies), in the early stages of this review until March  
49  
50  
51 606 2020. DS is currently employed by San'yas Indigenous Cultural Safety Learning  
52  
53  
54 607 Programs, Indigenous Health, Provincial Health Services Authority as of September  
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4 608 2020. They offer educational interventions and consultation services designed to uproot  
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6 609 anti-Indigenous racism and promote cultural safety for Indigenous people. One of the  
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9 610 interventions studied included an early version of one of the online training programs  
10  
11 611 offered by San'yas. It was referred to as Indigenous Cultural Competency (ICC) and was  
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14 612 applied as part of a larger intervention in one of the articles included in the systematic  
15  
16 613 review. This version was delivered prior to DS' employment with San'yas. The program  
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18  
19 614 is situated within a Provincial Health Services Authority (PHSA) in British Columbia,  
20  
21  
22 615 Canada and operated on a non-profit, cost recovery model through fees charged for the  
23  
24 616 training and with oversight by PHSA Indigenous Health Leadership. All of DS'  
25  
26  
27 617 compensation is subject to PHSA policies and DS is not permitted to receive any  
28  
29  
30 618 compensation or payments outside of salary and benefits. DS' contributions were limited  
31  
32 619 to the conceptual design of the study as well as high level commentary and feedback on  
33  
34  
35 620 high level thematic analyses and draft manuscripts. DS was blinded to the mention of ICC  
36  
37 621 (now San'yas) training materials in any discussions related to higher level thematic  
38  
39  
40 622 analysis.

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43 623

## 44 45 624 **FUNDING**

46  
47  
48 625 Dr. Smylie is funded by a Tier 1 Canada Research Chair. This project was also supported  
49  
50  
51 626 by funding from the Southwest Ontario Aboriginal Health Access Centre (SOAHAC) and  
52  
53  
54 627 the St. Michael's Hospital Foundation.

628

## 629 DATA SHARING

630 Most of the data generated or analysed as well as the WLHQAT applied during this study  
631 are publicly available. Additional materials are available upon request from the  
632 corresponding author.

633

## 634 ETHICS APPROVAL AND CONSENT TO PARTICIPATE

635 Ethics approval and consent to participate were not required for this study.

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### 17 18 833 **LIST OF ABBREVIATIONS**

19  
20  
21 834 Well Living House Quality Appraisal Tool (WLHQAT)

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24 835 South Ontario Aboriginal Health Access Centre (SOAHAC)

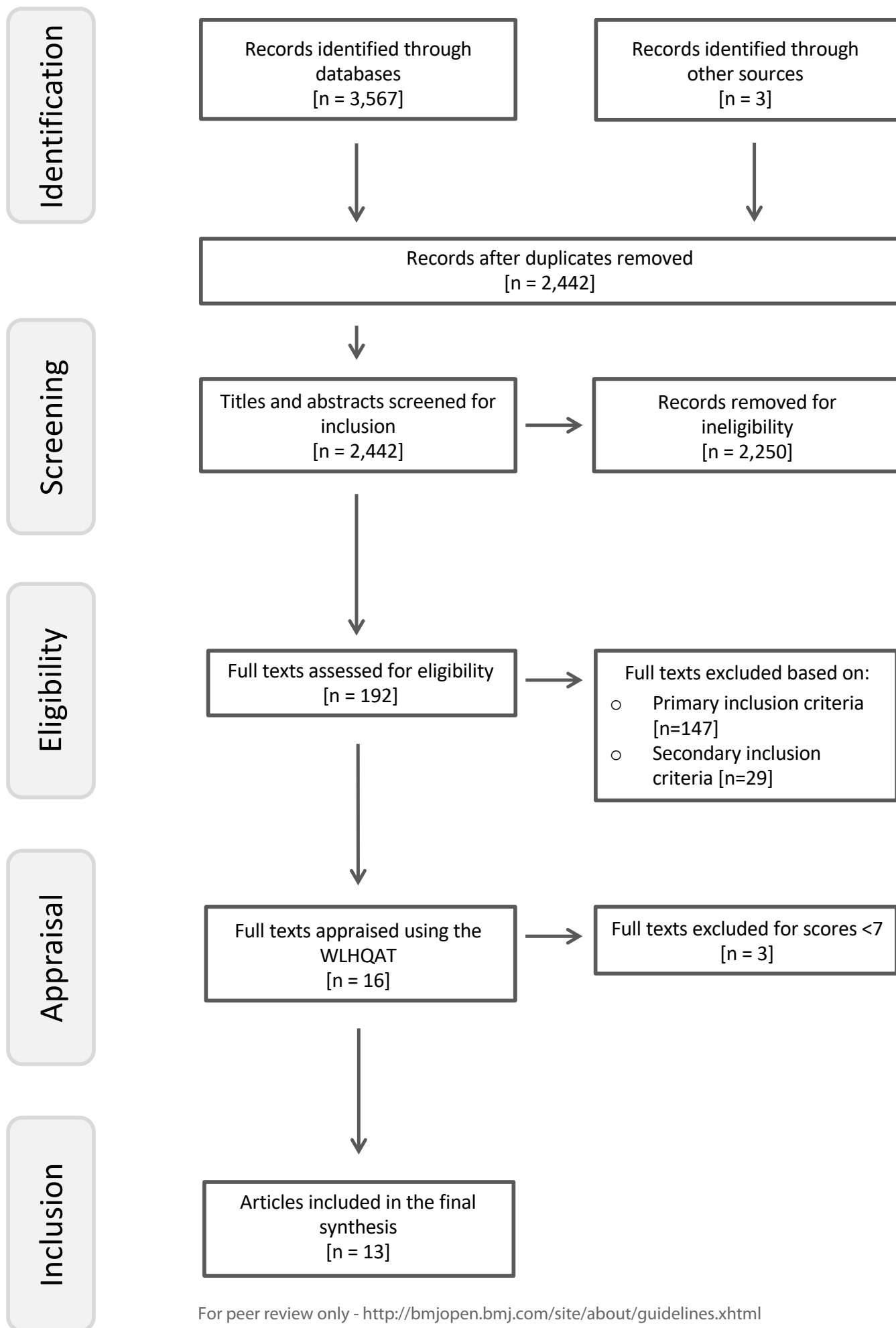
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### 28 29 837 **ACKNOWLEDGEMENTS**

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32 838 The authors would like to acknowledge Michèle Parent Bergeron and SOAHAC for their  
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34 839 contributions to the study.  
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## Supplementary Figure 2

### Search Strategies:

Below are the full search strategies exactly as run on the fourth search update on May 12, 2022. Three previous searches were carried out using these strategies on September 18, 2018; July 30, 201; and March 9, 2021. The first search on September 18, 2018 was limited to articles published from 2006 and on.

### Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
 2 exp Indigenous Peoples/ 19761  
 3 Oceanic Ancestry Group/ 11661  
 4 United States Indian Health Service/ 596  
 5 Health Services, Indigenous/ 3819  
 6 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 7 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 8 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 9 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 10 amerindien\* or indigene\*).mp. 79690  
 11 6 (indian or indians).ti,ab,kw. 82911  
 12 India/ 115065  
 13 6 not 7 55466  
 14 1 or 2 or 3 or 4 or 5 or 8 128874  
 15 Cultural Competency/ 6278  
 16 Culturally Competent Care/ 2028  
 17 Transcultural Nursing/3442  
 18 cultural diversity/ 12558  
 19 cultural\* competenc\*.tw,kf. 4480  
 20 cultural\* safe\*.tw,kf. 941  
 21 cultural awareness.tw,kf. 717  
 22 cultural\* sensitiv\*.tw,kf. 5526  
 23 cultural\* secur\*.tw,kf.54  
 24 cultural humility.tw,kf. 407  
 25 cross-cultural.tw,kf. 15212  
 26 cultural\* respect\*.tw,kf. 115  
 27 anti-racis\*.tw,kf. 349



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3 23 antiracis\*.tw,kf. 312  
4 24 postcolonial\*.tw,kf. 426  
5 25 colonial\*.tw,kf. 7112  
6 26 or/10-25 50752  
7 27 exp Health Personnel/581961  
8 28 "Attitude of Health Personnel"/ 129471  
9 29 "Internship and Residency"/ 57027  
10 30 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
11 or worker\* or staff or specialist\* or employee\*)).tw,kf. 363535  
12 31 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
13 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
14 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
15 pharmacist\* or dietician\* or medic\* resident\*).tw,kf. 1374101  
16 32 or/27-31 1933424  
17 33 Education/ 21493  
18 34 curriculum/ 83087  
19 35 competency-based education/ 4429  
20 36 exp education, professional/ 321367  
21 37 exp Inservice Training/ 29907  
22 38 exp Teaching/ 91371  
23 39 exp Teaching Materials/ 123098  
24 40 exp Health Personnel/ed [Education] 63884  
25 41 cultural competency/ed 961  
26 42 Transcultural Nursing/ed [Education] 864  
27 43 exp Culture/ed [Education] 1033  
28 44 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
29 seminar\*).tw,kf. 1604662  
30 45 (professional development or staff development).tw,kf. 13772  
31 46 or/33-45 1870696  
32 47 9 and 26 and 32 and 46 945  
33 48 limit 47 to english language 934  
34 49 limit 48 to ed=20210308-20220512 123  
35 50 limit 48 to dt=20210308-20220512 111  
36 51 limit 48 to ez=20210308-20220512 111  
37 52 limit 48 to yr="2022 -Current" 50  
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## Embase Classic+Embase &lt;1947 to 2022 May 11&gt;

1 indigenous people/ or alaska native/ or american indian/ or canadian aboriginal/ or first  
 2 nation/ or indigenous australian/ 32329  
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 6 1 exp amerind people/ or exp australian aborigine/ or exp eskimo-aleut people/ or exp na-  
 7 dene people/ 7622  
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 9 2 "maori (people)"/ or native hawaiian/ 2383  
 10  
 11 3 exp oceanic ancestry group/ 9022  
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 13 4 indigenous health care/ 1176  
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 15 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 16 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 17 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 18 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 19 amerindien\* or indigene\*).ti,ab,kw. 93751  
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 21 6 (indian or indians).ti,ab,kw. 114804  
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 23 7 exp indian/ 40575  
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 25 8 India/ 167974  
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 31 11 (or/1-6) or 11 153454  
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 33 12 cultural competence/ 7387  
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 35 13 transcultural care/ 4825  
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 37 14 cultural sensitivity/ 1261  
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 39 15 cultural diversity/ 2692  
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 41 16 cultural\* competenc\*.tw. 4546  
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 43 17 cultural\* safe\*.tw. 1038  
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 45 18 cultural awareness.tw. 839  
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 47 19 cultural\* sensitiv\*.tw. 6598  
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 49 20 cultural\* secur\*.tw. 71  
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 51 21 cultural humility.tw. 426  
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 53 22 cross-cultural.tw. 15606  
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 55 23 cultural\* respect\*.tw. 137  
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 57 24 anti-racis\*.tw. 310  
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 59 25 antiracis\*.tw. 294  
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 26 postcolonial\*.tw. 375  
 27 colonial\*.tw. 7139  
 28 or/13-28 45229  
 29 exp health care personnel/ 1856636

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5 or worker\* or staff or specialist\* or employee\*)).tw.478961  
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7 33 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
8 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
9 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
10 pharmacist\* or dietician\* or medic\* resident\*).tw. 1881277  
11  
12 34 30 or 31 or 32 or 33 3109487  
13  
14 35 education/ or continuing education/ or course content/ or curriculum/ or curriculum  
15 development/ or education program/ or "outcome of education"/ 615015  
16  
17 36 in service training/ 16717  
18  
19 37 teaching/ 108269  
20  
21 38 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
22 seminar\*).tw. 2082644  
23  
24 39 (professional development or staff development).tw. 15840  
25  
26 40 35 or 36 or 37 or 38 or 39 2297974  
27  
28 41 12 and 29 and 34 and 40 930  
29  
30 42 limit 41 to embase 254  
31  
32 43 limit 42 to english language 253  
33  
34 44 limit 43 to dc=20210308-20220512 42

34 **EBM Reviews - Cochrane Central Register of Controlled Trials <April 2022>**

35 **EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 11, 2022>**

36  
37  
38 1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
39 exp Indigenous Peoples/ 327  
40  
41 2 Oceanic Ancestry Group/ 7  
42  
43 3 United States Indian Health Service/ 4  
44  
45 4 Health Services, Indigenous/ 47  
46  
47 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
48 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
49 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
50 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
51 amerindien\* or indigene\*).mp. 3033  
52  
53 6 (indian or indians).ti,ab,kw. 5091  
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55 7 India/ 2437  
56  
57 8 6 not 7 4449  
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9 1 or 2 or 3 or 4 or 5 or 8 6754

10 Cultural Competency/ 190

11 Culturally Competent Care/ 110

12 Transcultural Nursing/14

13 cultural diversity/ 79

14 cultural\* competenc\*.tw,kf. 100

15 cultural\* safe\*.tw,kf. 35

16 cultural awareness.tw,kf. 13

17 cultural\* sensitiv\*.tw,kf. 589

18 cultural\* secur\*.tw,kf.8

19 cultural humility.tw,kf. 11

20 cross-cultural.tw,kf. 357

21 cultural\* respect\*.tw,kf. 8

22 anti-racis\*.tw,kf. 9

23 antiracis\*.tw,kf. 1

24 postcolonial\*.tw,kf. 1

25 colonial\*.tw,kf. 34

26 or/10-25 1413

27 exp Health Personnel/10279

28 "Attitude of Health Personnel"/ 2059

29 "Internship and Residency"/ 1373

30 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
31 or worker\* or staff or specialist\* or employee\*)).tw,kf. 31086

32 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
33 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
34 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
35 pharmacist\* or dietician\* or medic\* resident\*).tw,kf. 147680

36 or/27-31 169128

37 Education/ 608

38 curriculum/ 1584

39 competency-based education/ 89

40 exp education, professional/ 5404

41 exp Inservice Training/ 835

42 exp Teaching/ 4681

43 exp Teaching Materials/ 4501

44 exp Health Personnel/ed [Education] 16

45 cultural competency/ed 0

46 Transcultural Nursing/ed [Education] 0

1  
2  
3 43 exp Culture/ed [Education] 1  
4 44 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
5 seminar\*).tw,kf. 196173  
6  
7 45 (professional development or staff development).tw,kf. 475  
8  
9 46 or/33-45 200177  
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11 47 9 and 26 and 32 and 46 47  
12 48 limit 47 to yr="2021 -Current" 6  
13 49 remove duplicates from 48 6  
14  
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### APA PsycInfo <1806 to May Week 2 2022>

18  
19 1 exp indigenous populations/ 15198  
20 2 tribes/ 1259  
21 3 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
22 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
23 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
24 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
25 amerindien\* or indigene\*).tw. 31755  
26  
27 4 ((indian or indians) not india).tw. 15700  
28  
29 5 1 or 2 or 3 or 442412  
30  
31 6 cultural sensitivity/ 7916  
32  
33 7 cultural\* competenc\*.tw. 5610  
34  
35 8 cultural\* safe\*.tw. 369  
36  
37 9 cultural awareness.tw. 1291  
38  
39 10 cultural\* sensitiv\*.tw. 6987  
40  
41 11 cultural\* secur\*.tw. 29  
42  
43 12 cultural humility.tw. 482  
44  
45 13 cross-cultural.tw. 37152  
46  
47 14 cultural\* respect\*.tw. 101  
48  
49 15 anti-racis\*.tw. 836  
50  
51 16 antiracis\*.tw. 650  
52  
53 17 postcolonial\*.tw. 2067  
54  
55 18 colonial\*.tw. 6809  
56  
57 19 or/6-18 62234  
58  
59 20 exp health personnel attitudes/ 25839  
60  
61 21 medical residency/ 4825  
62  
63 22 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
64 or worker\* or staff or specialist\* or employee\*)).tw.122311

23 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
 24 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
 25 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
 26 pharmacist\* or dietician\* or medic\* resident\*).tw. 579592  
 27 20 or 21 or 22 or 23 654864  
 28 education/ 40342  
 29 curriculum/ or curriculum development/ 34802  
 30 exp continuing education/ or professional development/ 26018  
 31 educational programs/ or educational program evaluation/ or multicultural education/  
 32 36396  
 33 personnel training/ or sensitivity training/ 11256  
 34 training/ or communication skills training/ or sensitivity training/ 27011  
 35 exp teaching/ 131059  
 36 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
 37 seminar\*).tw. 1241080  
 38 (professional development or staff development).tw. 27110  
 39 or/25-33 1267277  
 40 5 and 19 and 24 and 34 599  
 limit 35 to (chapter or "column/opinion" or "comment/reply" or editorial or letter or  
 review-book or review-media or review-software & other) 96  
 35 35 not 36 503  
 36 limit 37 to english language 484  
 37 limit 38 to up=20210308-20220512 41  
 38 remove duplicates from 39 41

### CINAHL Search History

Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete

#	Query	Limiters/Expanders	Results
S31	S29 AND S30	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	109
S30	EM 20210308-20220512	Expanders - Apply equivalent subjects	474,059

		Search modes - Boolean/Phrase	
S29	S22 OR S26	Limiters - English Language Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	1,304
S28	S27	Search modes - Boolean/Phrase	1,173
S27	S22 OR S26	Limiters - Published Date: 20060101- 20181231; English Language Search modes - Boolean/Phrase	709
S26	S6 AND S25	Search modes - Boolean/Phrase	95
S25	S23 OR S24	Search modes - Boolean/Phrase	1,087
S24	(MH "Cultural Safety/ED")	Search modes - Boolean/Phrase	38
S23	(MH "Cultural Competence/ED")	Search modes - Boolean/Phrase	1,049
S22	S6 AND S12 AND S17 AND S21	Search modes - Boolean/Phrase	1,144
S21	S18 OR S19 OR S20	Search modes - Boolean/Phrase	1,285,878
S20	(professional development or staff development)	Search modes - Boolean/Phrase	73,618
S19	(training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*)	Search modes - Boolean/Phrase	1,144,026

S18	(MH "Education") OR (MH "Curriculum+") OR (MH "Education, Competency-Based") OR (MH "Teaching") OR (MH "Teaching Materials+") OR (MH "Teaching Methods+")	Search modes - Boolean/Phrase	293,141
S17	S13 OR S14 OR S15 OR S16	Search modes - Boolean/Phrase	1,524,544
S16	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counselor* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*)	Search modes - Boolean/Phrase	1,220,148
S15	((health* or medical or nurs* or hospital) N2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*))	Search modes - Boolean/Phrase	375,539
S14	(MH "Attitude of Health Personnel+")	Search modes - Boolean/Phrase	114,454
S13	(MH "Health Personnel+")	Search modes - Boolean/Phrase	627,401
S12	S7 OR S8 OR S9 OR S10 OR S11	Search modes - Boolean/Phrase	51,961
S11	cultural* competenc* or cultural* safe* or cultural awareness or cultural* sensitiv* or cultural* secur* or cultural humility or cross-cultural or cultural* respect* or anti-racis* or antiracis* or postcolonial* or colonial*	Search modes - Boolean/Phrase	31,303
S10	(MH "Cultural Diversity") OR (MH "Cultural Values")	Search modes - Boolean/Phrase	24,283
S9	(MH "Transcultural Care")	Search modes - Boolean/Phrase	3,296
S8	(MH "Cultural Safety")	Search modes - Boolean/Phrase	778



S7	(MH "Cultural Competence")	Search modes - Boolean/Phrase	11,142
S6	S1 OR S2 OR S5	Search modes - Boolean/Phrase	55,137
S5	S3 NOT S4	Search modes - Boolean/Phrase	12,493
S4	(MH "India")	Search modes - Boolean/Phrase	42,378
S3	TI ( (indian or indians) ) OR AB ( (indian or indians) )	Search modes - Boolean/Phrase	22,181
S2	(Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*)	Search modes - Boolean/Phrase	47,753
S1	(MH "Indigenous Peoples+") OR (MH "Health Services, Indigenous") OR (MH "Indigenous Health")	Search modes - Boolean/Phrase	23,870

### ProQuest Search Strategy

#### Search Strategy

Set#	Searched for	Databases	Results
S1	noft((Aborigin* OR Indigenous OR Eskimo* OR Inuit* OR Inuk* OR Metis OR First Nations OR First Nation OR 1st nation OR 1st nations OR "Native Canadian*" OR "Native American*" OR Maori* OR "Pacific Islander*" OR "American Indian*" OR Amerindian* OR "Native Alaska*" OR "Alaska Native*" OR "Native Hawaiian*" OR "Torres Strait Islander*" OR "on-reserve" OR "off-	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	7452

	reserve" OR tribal OR autochtone* OR amerindien* OR indigene*) AND la.exact("English") AND pd(>20201231)		
S2	noft(("cultural* competenc*" OR "cultural* safe*" OR "cultural awareness" OR "cultural* sensitiv*" OR "cultural* secur*" OR "cultural humility" OR "cross-cultural" OR "cultural* respect*" OR "anti-racis*" OR antiracis* OR postcolonial* OR colonial*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10129
S3	noft((health* OR medical OR nurs* OR hospital) NEAR/2 (personnel OR provider* OR professional* OR worker* OR staff OR specialist* OR employee*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10349
S4	noft((((doctor* OR physician* OR practitioner* OR nurse* OR clinician* OR hospitalist* OR dentist* OR therapist* OR physiotherapist* OR ("occupational therapist" OR "occupational therapists") OR psychologist* OR psychiatrist* OR counsellor* OR ("social worker" OR "social workers") OR midwi* OR paramedic* OR "emergency medical technician*" OR pharmacist* OR dietician* OR "medic* resident*")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	31501
S5	noft(((training OR education* OR learn* OR teach* OR workshop* OR curricul* OR pedagog* OR seminar* OR "professional development" OR "staff development")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	115033
S6	(S1 AND S2 AND (S3 OR S4) AND S5)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	77

## Bibliography of Indigenous Peoples in North America (EBSCOhost)

### 2 Results

(( ((health\* or medical or nurs\* or hospital) N2 (personnel or provider\* or professional\* or worker\* or staff or specialist\* or employee\*)) ) OR ( (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\* or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or pharmacist\* or dietician\* or medic\* resident\*) ))

AND

( ("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) )

AND

( (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") )

Limit to 2021-2022, English Language, Academic Journals

### Web of Science

Science Citation Index Expanded (SCI-EXPANDED)

Social Sciences Citation Index (SSCI)

93 Results

((TS=("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) AND TS=(training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") AND TS=(Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or amerindien\* or indigene\*) AND TS=("health care" or healthcare or hospital\* or medical or nurses or doctors)))

Timespan: 2021-03-08 to 2022-05-12 (Index Date)

## Supplementary Figure 3

## Well Living House Quality Appraisal Tool

Citation (Title, Author, Date) [INSERT FOR EACH STUDY]

Local Community Relevance of Method and Measures (Score out of 4)

Did the measures of success reflect local Indigenous community understandings of success?	<p>Yes = 2 (look for: outcomes are derived from community members/ are the outcomes reflecting indigenous concepts evidence provided explicitly in the text where did evaluation take place, who collected evaluation data?)</p> <p>Partial = 1 (hints of including local community values/beliefs/knowledge systems in text and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) indicated that success was not defined by the community)</p>
Had methods and tools been tested and validated previously in a similar Indigenous context and reviewed for relevance by appropriate community members?	<p>Yes = 2 (evidence is provided explicitly in text)</p> <p>Partial = 1 (hints of using a tool that has been used in Indigenous contexts and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) said that the evaluation method/tool has not been used in Indigenous contexts)</p>

Rigour and internal validity of the evaluation method (Score out of 4)

Do the quantitative or qualitative methods meet relevant rigour and internal validity?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p>Generally: Is the study design appropriate for evaluation research question(s)? Are the conclusions supported and justified by the results?</p> <p><u>Quantitative</u>: Is the sample size described and justified? Are the instruments/tools already validated?</p> <p>Are threats to validity addressed (such as confounding factors)?</p> <p><u>Qualitative</u>: Are the participants selected using appropriate strategies (such as purposive sample or until saturation is reached)? Is there clearly articulated theoretical approach/methodology/ data collection methods and analytic lens – do these fit together? Is there evidence of truthfulness of the findings?</p>
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Strength of the Evidence (score out of 4)

Is the evidence strong?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p><u>Quantitative</u>: Does the evidence have adequate power and statistical significance? Is the response rate reasonable?</p> <p><u>Qualitative</u>: Are there major and convincing themes from triangulation, and/or member checking?</p>
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Total Score:

## Supplementary File 1 – Study Screening Protocol

**Screening Protocol**

**Working Title:** Wise practices – what we know about the design and implementation of Indigenous cultural safety training programs for service providers: a scoping review

**Primary Research Question:** What are the impacts of Indigenous cultural safety, competency or other educational interventions on non-Indigenous health and social service providers' knowledge, attitudes, and culturally safe practices

**Secondary Research Questions:** Are there specific training approaches, strategies, formats or content

**Date:** October 1, 2018

**Screening software:** colandr <https://colandrapp.com/signin> OR abstrackr <http://abstrackr.cebm.brown.edu/>

**Level 1 Screening: Titles and Abstracts**

	Yes	No	Unclear
Does the title/abstract indicate that the article is specific to <u>Indigenous contexts</u> in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the title/abstract indicate that the article explores <u>educational interventions (workshops, training, coursework, sessions, etc.)</u> that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the title/abstract indicate that the article focuses on education for <u>adult learners who provide services</u> (e.g. health services) to Indigenous peoples?			

- If all yes, include
- If all yes and some unclear, include
- If one no, exclude

## Supplementary File 1 – Study Screening Protocol

## Level 2 Screening: Full-Text

	Yes	No	Unclear
Is the article specific to <u>Indigenous contexts</u> in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the article explore <u>educational interventions (workshops, training, coursework, sessions, etc.)</u> that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the article focus on education for <u>adult learners who provide services (e.g. health services)</u> to Indigenous peoples?			
Does the article include a <u>information about outcomes</u> for the educational intervention (definition of outcome is broadly defined and can include, for example, microaggression scales, academic understanding, anti-racist measures etc.)?			

- If all yes, include
- If one no, exclude

## Supplementary File 2

## Data Extraction Form for Indigenous Cultural Safety Education for Healthcare Providers

Reviewer Name:		
Authors:		
Year:		
Title:		
Journal:		
<b>Study Characteristics</b>		<i>Page</i>
Type of publication (manuscript, report, etc.)		
Type of study (quantitative, qualitative, mixed methods)		
Study Design (RCT, quasi- experimental, qualitative)		
Location and time frame		
Aim of the study		
<b>Population</b>		<i>Page</i>
Discipline		
Sampling & recruitment method		
Inclusion and exclusion criteria		
Data sources (primary/secondary data)		
Notes:		
<b>Cultural Safety</b>		<i>Page</i>
Does the article apply a definition of cultural safety, competency or sensitivity that includes addressing/eliminating anti- Indigenous racism, bias and/or stereotyping?		
Is this applied to the intervention?		
Does the article apply an anti-racist focus in the design and/or implementation of cultural safety, competency, etc. interventions?		
Is it applied to the intervention?		

## Supplementary File 2

Notes:		
<b>Intervention detail</b>		<i>Page</i>
Type of intervention: psychological, psychosocial, educational and alternative interventions		
Cultural component to intervention		
<b>Brief Name:</b> name/phrase that describes intervention		
<b>Why:</b> describe rationale, goal, theory or elements essential to the intervention		
<b>What - Materials:</b> Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL).		
<b>Procedures:</b> Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities.		
<b>Who:</b> For each category of intervention provider (e.g. psychologist, nursing assistant), describe their expertise, background and any specific training given.		
<b>How:</b> Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group.		
<b>Where:</b> Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.		
<b>When and How:</b> Describe the number of times the intervention was delivered and		



## Supplementary File 2

1	over what period of time		
2	including the number of		
3	sessions, their schedule, and		
4	their duration, intensity or		
5	dose.		
6			
7	<b>Tailoring:</b> If the intervention		
8	was planned to be		
9	personalised, titrated or		
10	adapted, then describe what,		
11	why, when, and how.		
12	<b>Modifications:</b> If the		
13	intervention was modified		
14	during the course of the study,		
15	describe the changes (what,		
16	why, when, and how).		
17	<b>How well:</b> Planned: If		
18	intervention adherence or		
19	fidelity was assessed, describe		
20	how and by whom, and if any		
21	strategies were used to		
22	maintain or improve fidelity,		
23	describe them.		
24			
25	Actual: If intervention		
26	adherence or fidelity was		
27	assessed, describe the extent to		
28	which the intervention was		
29	delivered as planned.		
30	<b>Evaluation</b>		<i>Page</i>
31	Type of study (RCT, case		
32	study, etc.)		
33			
34	Brief methods overview		
35			
36			
37	Data collection		
38	tools/methods		
39			
40	Outcome measure		
41	description (primary and		
42	secondary)		
43			
44	Outcome specific to client		
45	level change (y/n)		
46			
47	Outcome specific to		
48	clinician level change (y/n)		
49			
50	Outcome specific to		
51	institutional level change		
52	(y/n)		
53	Notes:		
54			
55			
56	<b>Results</b>		
57		<i>individual</i>	<i>institutional</i> <i>other</i>
58			
59	Cultural safety outcome		
60			

Supplementary File 2

1	Other outcome			
2	<b>Other Information</b>			
3				
4	Authors' conclusions			

For peer review only

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## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	pg.1
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 1-2
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 1-3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5-6
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplement 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 6-7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 7-8
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 7-8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 8-9; Supplemental 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 9 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 9
Study characteristics	17	Cite each included study and present its characteristics.	pg. 9-14
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 14
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 14-17
	23b	Discuss any limitations of the evidence included in the review.	pg. 14-17
	23c	Discuss any limitations of the review processes used.	N/A
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 16-17
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	pg. 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	pg. 23
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 24
Competing interests	26	Declare any competing interests of review authors.	pg. 24
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 23

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi:10.1136/bmj.n71

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# BMJ Open

## Systematic review of Indigenous Cultural Safety training interventions for health care professionals in Australia, Canada, New Zealand and the United States.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-073320.R2
Article Type:	Original research
Date Submitted by the Author:	14-Sep-2023
Complete List of Authors:	Hardy, Billie-Jo; University of Toronto - St George Campus, Dalla Lana School of Public Health; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Filipenko, Sam; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Smylie, Diane; Ontario Federation of Indigenous Friendship Centres Ziegler, Carolyn; Unity Health Toronto, Health Sciences Library, St. Michael's Hospital Smylie, Janet; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute; University of Toronto - St George Campus, Dalla Lana School of Public Health
<b>Primary Subject Heading</b>:	Medical education and training
Secondary Subject Heading:	Health policy
Keywords:	EDUCATION & TRAINING (see Medical Education & Training), Health Equity, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Systematic Review

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4 1 **Systematic review of Indigenous Cultural Safety training interventions for**  
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6 2 **healthcare professionals in Australia, Canada, New Zealand and the United**  
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8 3 **States.**  
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55 21 **KEYWORDS**  
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22 Indigenous health, Education & Training, Health Equity, Health Policy, Quality in Health

23 Care

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25 **WORDCOUNT** 5019

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For peer review only



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4 30 **ABSTRACT**

5  
6 31 Objective: To synthesize and appraise the design and impact of peer-reviewed  
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9 32 evaluations of Indigenous cultural safety training programs and  
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11 33 workshops for healthcare workers in Australia, Canada, New  
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14 34 Zealand, and/or the United States of America.

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17 35 Design: Systematic review.

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19 36 Data Sources: Ovid Medline, Embase, PsycINFO, CINAHL, Cochrane Central  
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22 37 Register of Controlled Trials, Cochrane Database of Systematic  
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24 38 Reviews, Bibliography of Indigenous Peoples in North America,  
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27 39 Applied Social Sciences Index & Abstracts, ERIC (Education  
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30 40 Resources Information Center), International Bibliography of the  
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32 41 Social Sciences, ProQuest Dissertations & Theses Global,  
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34  
35 42 Sociological Abstracts, and Web of Science's Social Sciences  
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37  
38 43 Citation Index and Science Citation Index from January 1, 2006 to  
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41 44 May 12, 2022.

42  
43 45 Eligibility criteria Studies that evaluated the outcomes of educational interventions  
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45  
46 46 for selecting studies: designed to improve cultural safety, cultural competency,  
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48 47 and/or cultural awareness for non-Indigenous adult healthcare  
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51 48 professionals in Canada, Australia, New Zealand, or the United  
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54 49 States of America.

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4 50 Data Extraction and Our team of Indigenous and allied scientists tailored existing data

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6 51 extraction

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9 52 Synthesis: and quality appraisal tools with input from Indigenous health service

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11 53 partners. We synthesized results using an iterative narrative

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14 54 approach.

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16 55 Results: 2,442 unique titles and abstracts met screening criteria. 13 full-texts

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19 56 met full inclusion and quality appraisal criteria. Study designs,

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22 57 intervention characteristics, and outcome measures were

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24 58 heterogenous. Nine studies used mixed methods, two used

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27 59 qualitative methods, and two used quantitative methods. Training

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30 60 participants included nurses, family practice residents, specialized

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32 61 practitioners and providers serving specific subpopulations.

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35 62 Theoretical frameworks and pedagogical approaches varied across

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38 63 programs, which contained overlapping course content. Study

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40 64 outcomes were primarily learner-oriented, and focused on self-

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43 65 reported changes in knowledge, awareness, beliefs, attitudes, and/or

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45 66 the confidence and skills to provide care for Indigenous peoples. The

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48 67 involvement of local Indigenous communities in the development,

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51 68 implementation, and evaluation of the interventions was limited.

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53 69 Conclusion: There is limited evidence regarding the effectiveness of specific

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56 70 content and approaches to cultural safety training on improving non-

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4 71 Indigenous health professionals' knowledge of and skills to deliver  
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6 72 quality, non-discriminatory care to Indigenous patients. Future  
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9 73 research is needed that advances the methodological rigour of  
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11 74 training evaluations, is focused on observed clinical outcomes, and  
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14 75 is better aligned to local, regional, and/or national Indigenous  
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16 76 priorities and needs.  
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22 78 **SYSTEMATIC REVIEW REGISTRATION** Not Registered

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## 28 80 **STRENGTHS AND LIMITATIONS OF THIS STUDY**

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- 32  
33 82 • Our systematic review built upon existing tailored Indigenous systematic review  
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35 83 methodologies to implement a method aimed at optimizing relevance for Indigenous  
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38 84 peoples by ensuring that their expertise and knowledge was centred throughout the  
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41 85 project.  
42  
43 86 • Our systematic review applied data extraction and appraisal tools that were designed  
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45 87 and implemented in partnership with Indigenous community partners.  
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47  
48 88 • The review is limited to ICS programs with evaluations that have been published in  
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51 89 the peer-review and grey literature and as such, may not have captured the true  
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4 90 breadth of existing Indigenous cultural safety training programs and related  
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6 91 evaluations.

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9 92 • The review is limited to interventions directed towards healthcare providers.  
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## 14 94 INTRODUCTION

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17 95 Colonization has long been recognized by Indigenous peoples from around the world as  
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19 96 a cross-cutting and foundational determinant of Indigenous/non-Indigenous health  
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21 97 disparities.(1) More recently, a series of apologies by world leaders has enhanced general  
22  
23 98 societal awareness of anti-Indigenous colonial injustices, abuses, and harms.(2-5)  
24  
25 99 Simultaneously, a rapidly growing body of academic scholarship clearly demonstrates  
26  
27 100 ongoing, widespread, and harmful anti-Indigenous colonial policies and practices that are  
28  
29 101 rooted in racist ideologies of white supremacy.(6-12)  
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35 102  
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37 103 Common manifestations of persistent colonialism include the emergence of deeply rooted  
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39 104 negative anti-Indigenous stereotyping and assumptions in micro-level social interactions,  
40  
41 105 organizational design, and social architecture.(10, 13, 14) In healthcare contexts, this  
42  
43 106 includes: racist contamination of the healthcare provider-Indigenous patient interface;  
44  
45 107 organizational level barriers to equitable Indigenous health services access; and  
46  
47 108 Indigenous/settler imbalances in the distribution of health and social resources.(10, 13,  
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49 109 15) Social media and linked public reporting have begun to expose the life-threatening  
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4 110 severity of explicit attitudinal anti-Indigenous racism but there can be resistance to  
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6 111 acknowledging the underlying challenges of ongoing implicit and system-level failures.  
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9 112 For example, Joyce Echequan was able to record the anti-Indigenous racist  
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11 113 disparagement she experienced from healthcare staff when seeking treatment for a life-  
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14 114 threatening illness at the Lanaudiere hospital in Joliette, Quebec immediately prior to her  
15  
16 115 death.(16) The behaviours of the individual providers were widely regarded as grossly  
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19 116 unacceptable following media reporting. However, the Premier of Quebec refused to  
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21  
22 117 acknowledge the role of systemic racism in Joyce's death.(17)  
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24 118  
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27 119 Multiple studies have demonstrated that implicit race preference bias is common among  
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30 120 healthcare providers,(18) even when they explicitly express anti-racist values and  
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32 121 attitudes.(19) Further, implicit race preference bias has been linked to differential  
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35 122 application of clinical practice guidelines, with non-adherence disproportionately  
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37 123 impacting socially excluded racialized and ethnic patient populations.(20)  
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43 125 Not surprisingly, given the broad scope and injurious impacts of anti-Indigenous racism,  
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45 126 its interruption in healthcare contexts has emerged as a priority for Indigenous and allied  
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48 127 policymakers, practitioners, and researchers. Of the Truth and Reconciliation  
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51 128 Commission of Canada's seven Calls to Action in the domain of health, two address the  
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53 129 need to provide "cultural competency" training for healthcare providers.(21) These policy  
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56 130 recommendations have been accompanied by a rapid growth of interventions designed  
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4 131 to interrupt anti-Indigenous racism, primarily through educational interventions for  
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6 132 healthcare providers and trainees.(22,23) Upon engagement with this literature,(22) it  
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9 133 became apparent to our team that the approach, content, and evaluations of existing  
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11 134 cultural competency trainings vary widely. It was unclear which training approaches and  
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14 135 strategies were most effective, especially with respect to improving disparities in clinical  
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16 136 outcomes.

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22 138 In order to address these knowledge gaps, we conducted a systematic literature review  
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24 139 focused on the design and impacts of existing Indigenous cultural safety and competency  
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27 140 training interventions. The primary aim of this review was to identify, appraise and  
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30 141 synthesize the design and impacts of these educational interventions on non-Indigenous  
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32 142 healthcare professionals' knowledge, attitudes, and practices. The secondary aim was  
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35 143 to investigate whether specific training approaches, strategies, formats, or educational  
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37 144 content were more successful, and if yes, for whom and in what ways. To help manage  
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40 145 heterogeneity, we restricted this review to Indigenous-specific educational interventions  
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43 146 in Australia, Canada, New Zealand, and the United States. These globally affluent  
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45 147 countries share both relatively well-resourced health and social service systems and  
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48 148 history of European colonization that continues to negatively impact the health and  
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51 149 wellbeing of First Peoples, including equitable access to these service systems.

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4 151 **METHODS**

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6 152 The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

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9 153 2020 statement was used to guide our literature review and reporting.(24) Supplementary

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11 154 Figure 1 documents the process of article screening for inclusion in our analysis. Tables

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14 155 1 and 2 summarize key aspects of the included studies: intervention content; participants;

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17 156 evaluation methods; and study outcomes.

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**Table 1. Summary of Interventions**

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute online PowerPoint presentation and YouTube video	Online module(s)	Online	Cultural knowledge, spirituality, and beliefs; professional practice issues; interpersonal communication skills	Emergency Department healthcare providers and staff (n=6)
Barnabe C., et al.	2021	Canada	Phase I: half-day workshop, and Phase II: full day workshop (6 months later)	Online module(s); interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; oppressive and racist policies, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	2020	New Zealand	2 self-paced online modules	Online module(s); self-learning tools; personal reflections	Online	Family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour workshops over 6 weeks	Didactic lecture; interactive group discussions, reflections, and experiential exercises; personal reflections	Clinical	Cultural knowledge and ideology	Emergency Department: nursing, clinical and allied health staff (n=48)
Crowshoe L., et al.	2018	Canada	Full day (8 hours) workshop	Interactive group discussions, reflections, and experiential exercises	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)



1	Hinton R., et al.	2014	Australia	3 full-day workshops over 2 months	Didactic lecture; interactive group discussions, reflections, and experiential exercises; self-learning tools	Clinical	Specific health focus	Clinical and Allied Health Staff (n=21)
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6	Hulko W., et al.	2021	Canada	8-10 hours of online training over 8-10 weeks, and a full day Storytelling Session and Talking Circle with an Elder	Online module(s); story telling and talking circles; knowledge quiz; personal reflections	Online and classroom	Indigenous diversity; family structures, kinship, and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonization and white racial privilege; specific health focus	Nurses (n=38)
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15	Kerrigan V., et al.	2020	Australia	Full day (7 hours) workshop	Didactic lecture; interactive group discussions, reflections, and experiential exercises	Clinical	Cultural knowledge, spirituality, and beliefs; past policies and practices; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
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22	Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
23								
24								
25	Liaw S-T., et al.	2015	Australia	Half day workshop, case study toolkit, and cultural mentors	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	Clinical practice - solo physician/groups (n=10)
26								
27								
28	Liaw S-T., et al.	2019	Australia	Half day workshop, case study toolkit, and cultural mentor	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	General practice clinics (n=56); general practitioner physicians (n=334); practice managers (n=56); practice nurses (n=93)
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31								
32	Sauvé A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
33								
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37	Wheeler A., et al.	2021	Australia	1.5 hour online module, and a full day in-person workshop (2-3 weeks later)	Online module(s); interactive group discussions, reflections, and experiential exercises; personal reflections	Online and classroom	Health disparities; professional practice issues; interpersonal communication skills	Pharmacists (n=39)
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**Table 2. Summary of Evaluation and Outcomes**

Citation	Study design	Method	Tool(s)	Reported Outcome(s)
Barajas J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); free-text questions; Experience survey	Significant change in knowledge, skills, and approach to social and cultural factors. Intervention was reported as being relevant and meeting expectations.
Brewer K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI peoples. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Participant observations. Intervention satisfaction survey	Onsite satisfaction evaluation; observations of participant engagement with content on day; online survey	Significant improvement in knowledge, skills, awareness, confidence, and approach to patient care. Strong agreement that the workshop met objectives and expectations.
Hinton R., et al. 2014.	Mixed methods, action-oriented	File audit	2009 vs. 2011 audit of inpatient files	Some improvements to the quality of recovery-oriented care, as shown through an increase in recording client social history, family issues, and cultural factors.
Hulko W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, knowledge quizzes, and case study care planning. Talking Circles.	Approaches to Dementia Questionnaire; Indigenous Cultural Competency Knowledge Quiz; care plans for "Alice;" Talking Circle transcripts	Improvement in the knowledge, skills, and values of the nurse participants. Storytelling sessions were reported as being effective at building capacity.

Kerrigan V., et al. 2020.	Mixed methods	Post-survey	Likert-scale questions on Quality of Training; free-text questions	Provided good to excellent information provided on all topics. Participants wanted further and more specific cultural education opportunities.
Kerrigan V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention interviews	Cultural Quotient questionnaire; file audit of health checks and clinical risk factors managed; follow-up interviews with staff, cultural mentors, and patients	Clinical practices improved their readiness to provide culturally appropriate care. Individual clinic staff improved their cultural strategic thinking.
Liaw S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	Cultural Quotient questionnaire; audit of rates of healthcare claims and chronic disease risk factors.	No significant change in Indigenous health check rates or cultural quotient scores.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); additional adapted questions; acceptability survey	Significant improvement in cultural capability, confidence, and skills. Significant change in motivation to improve health outcomes for Indigenous patients and reduce barriers. Acceptability of the intervention and perceived value-add to participant practice.

## 160 **Search strategy**

161 Consistent with the search methods outlined in the Cochrane Handbook for systematic  
162 reviews,(25) an Information Specialist (CZ) conducted database searches in Ovid  
163 Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials,  
164 Cochrane Database of Systematic Reviews, Bibliography of Indigenous People in North  
165 America, Applied Social Sciences Index & Abstracts, ERIC (Education Resources  
166 Information Center), International Bibliography of the Social Sciences, ProQuest  
167 Dissertations & Theses Global, Sociological Abstracts, and Web of Science's Social  
168 Sciences Citation Index and Science Citation Index. Search strategies were adapted for  
169 each database and used a comprehensive combination of subject headings and  
170 keywords for the concepts of Indigenous peoples, cultural competence and health  
171 professionals' education. Databases were searched for English language records from  
172 2006 to May 12, 2022 (based upon the emergence of literature describing and evaluating  
173 Indigenous cultural safety interventions) and uploaded into Colandr.(26) The reference  
174 lists of seminal texts and review articles were then reviewed for additional records. An  
175 additional 3 articles were identified for study inclusion. For the detailed search strategies  
176 see Supplementary Figure 2.

## 178 **Study screening**

179 Two independent reviewers screened all title and abstracts for full-text review using the  
180 following inclusion criteria:

1  
2  
3  
4 181 (1) Study specific to Indigenous contexts in what is now known as Australia, Canada,  
5  
6 182 New Zealand, and/or the United States of America;

7  
8  
9 183 (2) Study describes educational interventions (workshops, training, coursework,  
10  
11 184 community visits, etc.) designed/implemented to improve cultural safety, cultural  
12  
13  
14 185 competency, and/or cultural awareness;

15  
16  
17 186 (3) Educational intervention focused on a majority of non-Indigenous adult participants  
18  
19 187 healthcare professionals who provide services (e.g., health or social services) to  
20  
21  
22 188 Indigenous peoples.

23  
24 189  
25  
26  
27 190 Full-texts were obtained for all studies that passed this title and abstract screening stage  
28  
29  
30 191 and in the event that there was not enough information in the abstract to determine  
31  
32 192 inclusion according to these three criteria.

33  
34  
35 193  
36  
37 194 Three researchers collaborated on full-text screening and further eliminated articles that  
38  
39  
40 195 upon full reading, did not meet the primary inclusion criteria and two secondary inclusion  
41  
42  
43 196 criteria: (i) detailed information about the educational intervention's design and  
44  
45 197 implementation; (ii) defined evaluation outcomes. As per our inclusion criteria, we  
46  
47  
48 198 excluded studies in which the majority of the learners were Indigenous and/or the focus  
49  
50  
51 199 of the intervention was at the organizational versus healthcare provider level. We  
52  
53 200 additionally excluded train-the-trainer interventions in which the participants were not  
54  
55  
56  
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3  
4 201 directly providing health services. Our two-phased screening protocol is available as  
5  
6 202 Supplementary File 1.  
7

8  
9 203

#### 10 11 204 **Data Abstraction and Quality Appraisal**

12  
13  
14 205 Three researchers collaborated on data abstraction across the following categories:  
15  
16 206 study methods (design, evaluation methods and tools, participants,  
17  
18  
19 207 sampling/recruitment), study population, sampling and recruitment methods, educational  
20  
21  
22 208 intervention design (pedagogy, content, modifications) and outcomes (individual- and  
23  
24 209 system-level).

25  
26  
27 210 Two independent reviewers completed preliminary data abstraction and the lead author  
28  
29  
30 211 (BJH) subsequently reviewed all abstractions and finalized Tables 1-4. The lead and  
31  
32 212 senior authors (BJH, JS) independently appraised methodological quality using a tailored  
33  
34  
35 213 version of the Well Living House quality appraisal tool (WLHQAT)(27-29) (Supplementary  
36  
37 214 Figure 3) and subsequently met to discuss and reach consensus on scores (Table 3).  
38  
39  
40 215 WLHQAT includes three equally weighted assessment domains: local Indigenous  
41  
42 216 community relevance of methods; rigor and validity; and strength of evidence and has a  
43  
44  
45 217 maximum total score of 12. Studies with a total score of <7 were not included in the full  
46  
47  
48 218 synthesis. The interdisciplinary nature of included studies added complexity to the quality  
49  
50  
51 219 appraisal, in that the research team, study design, concepts and priorities, data collection,  
52  
53 220 and measures were wide-ranging.  
54

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56 221  
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**Table 3: Well Living House Quality Appraisal Scores**

Citation	Scoring Range 1-3 / 4-6 / 7-9 / 10-12
Barajas J. 2021	7-9
Barnabe C., et al. 2021.	7-9
Brewer K., McCann C., & Harwood M. 2020.	7-9
Chapman R., Martin C., & Smith T. 2014.	7-9
Crowshoe L., et al., 2018.	7-9
Delbridge R., et al., 2018	4-6
Durey A., et al., 2017	4-6
Hinton R., et al. 2014.	7-9
Hulko W., et al. 2021.	7-9
Kerrigan V., et al., 2020.	7-9
Kerrigan V., et al., 2022.	7-9
Liaw S-T., et al. 2015.	10-12
Liaw S-T., et al. 2019.	10-12
McMichael B., et al., 2019	4-6
Sauvé A., Cappelletti A., & Murji L. 2022.	7-9
Wheeler A., et al. 2021.	7-9

225

**Table 4 : Summary of Indigenous Involvement in Curriculum Development, Curriculum Delivery and Evaluation/Research Activities**

Citation	Study Design	Curriculum Development	Curriculum Delivery	Curriculum Evaluation	Study Analysis	Dissemination	Positionality
Barajas J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed



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4 2275  
6 228 **Synthesis**

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8  
9 229 We applied an iterative narrative approach to our synthesis.(30) This method was a good  
10  
11 230 fit with the heterogeneity of study designs and outcomes and our secondary aim to  
12  
13  
14 231 understand which specific training approaches were impactful for whom and in what  
15  
16 232 ways. In addition to our primary aim of identifying, summarizing, and assessing the  
17  
18  
19 233 design and outcomes of existing published evaluations of Indigenous cultural safety  
20  
21  
22 234 education programming for healthcare professionals, we were particularly interested in  
23  
24 235 documenting underlying pedagogies, instructional strategies, formats, and content and  
25  
26  
27 236 how these might be related to program success across participant groups and contexts.  
28  
29  
30 237 We were also interested in the involvement of Indigenous instructors and Indigenous  
31  
32 238 communities and how this might have contributed to program success.

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36  
37 240 The lead author led the synthesis of study design, participants, quality, and outcomes,  
38  
39  
40 241 drawing on data abstraction and with regular input from the other authors. Refinement of  
41  
42  
43 242 secondary narratives regarding (i) the role of underlying pedagogies and (ii) Indigenous  
44  
45 243 instructor and community involvement was achieved through iterative discussion of  
46  
47  
48 244 independently identified themes among the authorship team followed by in-depth re-  
49  
50  
51 245 examination of the included studies by the first author.

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4 247 Throughout the analysis, we applied a critical decolonizing lens where we intentionally  
5  
6 248 centered the distinct and diverse knowledges and strengths present in Indigenous  
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9 249 communities' practices of health and wellbeing.(31-34) The authors sought to  
10  
11 250 acknowledge and critique the systemic power dynamics that so often inform existing  
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13  
14 251 health program evaluation models, particularly when applied to oppressed populations,  
15  
16 252 including Indigenous peoples in what is now known as Australia, Canada, New Zealand  
17  
18  
19 253 and the United States. In so doing, we drew upon the foundational Indigenous principles  
20  
21  
22 254 of relationships, reciprocity, responsibility, respect, and relevance (known as the five  
23  
24 255 R's),(35-36) and applied our decolonizing approach to our consideration and analysis of  
25  
26  
27 256 the inclusion (or lack thereof) of Indigenous knowledges and practices in the evaluation  
28  
29  
30 257 of identified studies. Research that looks to learn about Indigenous experiences of health  
31  
32 258 programs and policies requires acknowledging the unique and distinct relations and  
33  
34  
35 259 interconnections held by Indigenous peoples that are so often decontextualized through  
36  
37  
38 260 the application of Western methodologies.(27) In keeping with our decolonizing  
39  
40  
41 261 approach, it is important for us to self-locate the authorship team as comprised of two  
42  
43 262 Indigenous women (JS, DS), one racialized settler ally (BJH), and two non-racialized  
44  
45 263 settler allies (SF, CZ).

264

## 265 **Patient and Public Involvement**

266 We did not involve patients or the public in the design, or conduct, or reporting, or  
267 dissemination plans of our research.

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4 2685  
6 269 **RESULTS**7  
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9 270 **Literature search**

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11 271 The literature search strategy resulted in 2,442 citations (following removal of any  
12  
13 272 duplicates), from which 2,250 were deemed ineligible based on title and abstract  
14  
15 273 screening. 192 articles were selected for full-text review from which 176 were excluded  
16  
17 274 based on the primary inclusion criteria (n=147) or secondary inclusion criteria (n=29).  
18  
19 275 (Supplementary Figure 1) We were left with 16 unique studies that described and  
20  
21 276 evaluated Indigenous cultural safety training for health professionals and were deemed  
22  
23 277 eligible for full synthesis inclusion.(37-52) (Table 3)  
24  
25  
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32 279 **Quality Appraisal**

33  
34  
35 280 Among the 16 studies that were included, three scored <7 on the WLHQAT.(42, 43, 50)  
36  
37 281 (Table 3) These studies were excluded from the synthesis. Lower scores reflected a  
38  
39 282 combination of the following: limited, to no involvement of Indigenous community partners  
40  
41 283 in the evaluation; inadequate sample size and/or lack of participant uptake and/or  
42  
43 284 retention in the evaluation; and/or weak evaluation study design.(43,50) For instance, a  
44  
45 285 low score could reflect that Indigenous scholars or community members were involved in  
46  
47 286 the design and/or delivery of the training program but not in the design and/or  
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4 287 implementation of the evaluation. Another study did not triangulate their qualitative study  
5  
6 288 results.(42)  
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9 289

## 10 11 290 **Study and population characteristics**

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13  
14 291 The 13 analyzed studies were published between 2014 – 2022. The majority (n=7) were  
15  
16 292 conducted in Australia.(40, 44, 46-49, 52) A smaller number (n=4) took place in  
17  
18 293 Canada.(38, 41, 45, 51) Of the last two studies, one was conducted in the United States  
19  
20 294 (US)(37) and the other was conducted in New Zealand.(39)  
21  
22  
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25 295

26  
27 296 Evaluation design varied widely. Nine of the studies applied mixed methods (37-38,  
28  
29 297 41,44-46, 48-49, 52) including various combinations of surveys, open-ended questions,  
30  
31 298 semi-structured interviews, and talking circles. One of these was a randomized trial that  
32  
33 299 incorporated a participatory action research approach, in which the research team  
34  
35 300 cooperated with the communities, supporting institutions and participants.(49) Two  
36  
37 301 studies were qualitative.(39,47) Another two were quantitative.(40,51) Eight studies  
38  
39 302 incorporated pre/post-intervention surveys.(38, 40-41, 45, 48-49, 51-52) Six of the studies  
40  
41 303 incorporated some measure of longer-term impact as part of the evaluation with varied  
42  
43 304 follow-up periods: across three years(44); 12 months(49); six months(39,48); and three  
44  
45 305 months.(38,41) The remainder of the studies (n=7) collected post-intervention data  
46  
47 306 immediately following the intervention. One intervention was described and evaluated  
48  
49 307 across multiple publications as part of a larger research program.(48-49) Most (n=10)  
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4 308 but not all of the studies, provided access to- and/or a detailed description of their  
5  
6 309 evaluation tools.(37-41, 44, 48-49, 51-52) Of the 11 studies that used survey tools, eight  
7  
8  
9 310 employed previously validated evaluation tools,(38, 40-41, 45, 48-49, 51-52) two of these,  
10  
11 311 although validated, were adapted by the research team.(41,51)

12  
13  
14 312  
15  
16 313 Sample sizes varied widely, ranging from six to 621, and studies took place in various  
17  
18 314 settings. The majority (n=8) occurred in clinical settings and the remainder were either  
19  
20 315 online (n=3) or a mix of online and in a classroom (n=2). Three of the studies recruited  
21  
22 316 specialized practitioners: rheumatologists(38), pharmacists(52), and speech language  
23  
24 317 therapists(39). One study recruited only family medicine residents(51) whereas another  
25  
26 318 focussed on nurses.(45) Four of the studies delivered interventions tailored to providers  
27  
28 319 serving a specific health service user population: arthritis(38), psychiatric care and mental  
29  
30 320 health(44); residential care(45), and Māori adults with aphasia.(39)

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40 322 **Reported Impacts of Indigenous Cultural Safety Education or Training**  
41  
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43 323 Study outcomes were almost exclusively learner-focused (n=10) and included learner  
44  
45 324 self-reports regarding: quality of the learning experience; changes in knowledge or  
46  
47 325 awareness; shifts in beliefs; attitudes regarding Indigenous peoples and their care  
48  
49 326 experiences; and/or confidence and skill to care for Indigenous peoples.(37-41,45-47,51-  
50  
51 327 52) (Table 2) A subset of learner-focused studies (n=4) included measures of self-  
52  
53 328 reported changes in practice.(38-39, 45, 47) These impacts were assessed using proxy  
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4 329 measures of clinical behaviour including post-intervention interviews with  
5  
6 330 learners,(39,47) or through the use of scenarios(38) or vignette-based care plans.(45)  
7  
8  
9 331 Although many of the studies reported significant changes in participants' attitudes,  
10  
11 332 knowledge and awareness, these findings were tempered by limitations in study design  
12  
13  
14 333 and implementation, such as self-selection bias,(38-40, 45-47, 51-52) small sample size,  
15  
16 334 low uptake and retention,(37-39, 41, 47, 51-52) the lack of randomization and/or controls  
17  
18  
19 335 (all, except for(49)) and potential social desirability response bias.(39) Conclusions  
20  
21  
22 336 regarding sustained impact over time, were limited by a paucity of studies (n=6) that  
23  
24 337 included longitudinal measurements.(38-39, 41, 44, 48-49)  
25  
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27 338  
28  
29 339 Few studies reported on clinical outcomes, and most were based on self-assessments  
30  
31  
32 340 (n=4) as described above.(38-39, 45, 47) Three studies described externally-assessed,  
33  
34  
35 341 patient-based practice outcomes through the use of file audits(44, 48-49) and qualitative  
36  
37 342 interviews with patients at the participating clinics.(48) Of note, the one study that  
38  
39  
40 343 included a randomized control and externally assessed, patient-based practice outcomes  
41  
42  
43 344 did not demonstrate any significant intervention impact.(49)  
44

45 345  
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48 346 Terminology varied widely across the studies, a phenomenon that has already been  
49  
50  
51 347 described elsewhere by Curtis et al(53) as negatively impacting the quality of the  
52  
53 348 evaluations and the ability to draw evidence-based comparisons. Some studies referred  
54  
55  
56 349 to cultural safety(37, 39, 45, 47) while others used terms such as: cultural awareness,(46)  
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3  
4 350 cultural security,(44) cultural respect,(48-49) cultural competency(39-41), cultural  
5  
6 351 humility,(38) cross-cultural education and cultural capability,(52) and intercultural  
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8  
9 352 empathy.(51) A few studies relied upon proxy measures to assess cultural safety. For  
10  
11 353 example, Crowshoe et al(41) described an increase in learners' "confidence" as a proxy  
12  
13  
14 354 for cultural safety. Kerrigan et al(46) focused on behaviour change and self-reported  
15  
16 355 aspiration as indicative of positive clinical outcomes, and noted that although "it was  
17  
18  
19 356 impossible to assess" whether their intervention shifted behaviour, they could "surmise  
20  
21  
22 357 that health professionals aspire to transfer learning to the workplace."((46) p7) Similarly,  
23  
24 358 in a later paper, Kerrigan and colleagues(47) suggested, based upon post-intervention  
25  
26  
27 359 interviews with learners, that "[D]octors changed behaviour in relation to building rapport  
28  
29  
30 360 with patients, asking patients questions, working with Aboriginal interpreters, gaining  
31  
32 361 informed consent."(p13) In conclusion they noted that there is "still a need to assess if  
33  
34  
35 362 training improves patient experience and outcomes"(p14) to determine whether the  
36  
37  
38 363 intervention improved cultural safety.(47) A few authors reflected on the overall  
39  
40 364 limitations of their findings, suggesting that they were not generalizable and/or that  
41  
42  
43 365 additional research is required.(37, 45-46, 51) Hulko and colleagues(45) indicated that  
44  
45 366 their intervention and evaluation was based upon Secwepemc ways of knowing and being  
46  
47  
48 367 and doing and as such could not be scaled up whereas Barajas(37) acknowledged the  
49  
50  
51 368 value of specificity and context and warned against developing and implementing training  
52  
53 369 programs through a pan-Indigenous approach.

370

## 371 Training approaches and methods

372 Theoretical frameworks and pedagogical approaches were manifold. Studies referenced  
373 transformative learning theories(38, 47, 51); social-constructivist frameworks (44);  
374 diffusion of innovation theory(37); a public health framework(39); and, Educating for  
375 Equity (E4E)(38, 41). Liaw et al(48-49) describe a trans-theoretical approach in which  
376 they harmonised cultural intelligence frameworks, developments in cultural respect,  
377 safety and competence and a review of successful Aboriginal programs alongside  
378 consultation with Aboriginal communities and others. Others (n=4) designed their  
379 program with cultural safety and decolonizing philosophies at their core.(39-40, 46-47)  
380 For example, Kerrigan et al(46) place the responsibility for change on the “hegemonic  
381 individuals and institutions.”((46) p3) Only one paper explicitly cited critical race  
382 theory(47) as a core component. A limited number (n=3) did not cite a conceptual theory  
383 or framework and instead reviewed cultural safety, competency and awareness in  
384 healthcare training and the possible benefits related to training programs.(40, 45, 52)  
385 Lastly, some of the training programs applied participatory action approaches or  
386 community-based approaches to the development and delivery of the training.(44-45, 47-  
387 49)

388

389 Participation for all programs was voluntary. Overall, there were similarities in course  
390 content across programs. Training delivery modalities varied and included combinations  
391 of online modules, didactic lectures, interactive group discussions, workshops,



1  
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3  
4 392 simulations, and reflections. (Table 1) Only one was delivered as a series of online  
5  
6 393 podcasts, an approach which was well-received by learners.(47) Although some in-  
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8  
9 394 person trainings (n=3) were delivered by non-Indigenous instructors,(44, 48-49) most  
10  
11 395 (n=7) were co-delivered/facilitated by a mix of Indigenous and non-Indigenous  
12  
13  
14 396 facilitators(38, 41, 45, 51) or delivered only by Indigenous facilitator(s)/instructor(s) (Table  
15  
16  
17 397 4).(40, 46, 52) Some of the more innovative approaches incorporated story-telling and  
18  
19 398 talking circles with Elders(45); podcasts developed and voiced by Elders(47); and,  
20  
21  
22 399 simulation training facilitated with Indigenous community members.(51) Liaw et al.(48-49)  
23  
24 400 delivered an integrative program, Ways of Thinking, Ways of Doing, which in addition to  
25  
26  
27 401 a short workshop, participants were also provided with a case study reference toolkit and  
28  
29  
30 402 a cultural mentor.

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34  
35 404 With one exception,(49) all of the training programs reported some level of impact, though  
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37  
38 405 only a few of the authors linked the observed impact to their training approaches and  
39  
40  
41 406 methods. Some directly attributed action-oriented(44, 48-49) and community-based(37,  
42  
43 407 45, 51) approaches to the impact of the interventions. However, the same authors also  
44  
45  
46 408 noted that the participatory components to the learning materials were not incorporated  
47  
48  
49 409 consistently (e.g. AIMhi care plans and engagement of Aboriginal Mental Health  
50  
51 410 Workers(44) and cultural mentors(49)). Crowshoe et al(41) suggested that the impact of  
52  
53  
54 411 their training program was related to “interactive educational techniques and intentional  
55  
56 412 facilitation strategies”(p54) including a combination of Indigenous and non-Indigenous

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4 413 facilitators. Notably, this study had a high drop-out rate with less than half of the registered  
5  
6 414 learners completing the post-survey.(41) Chapman and colleagues,(40) who applied a  
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8  
9 415 multi-modal training delivered by an Indigenous trainer, described how the impact of their  
10  
11 416 training program was limited to significant changes in learners' perceptions whereas  
12  
13  
14 417 learners' attitudes remained unchanged. Kerrigan and colleagues(47) claimed their  
15  
16 418 online Elder podcast changed both learner attitudes and behaviours among a small,  
17  
18  
19 419 convenience sample of 14 learners, based on the analysis of semi-structured interviews  
20  
21  
22 420 post-intervention.  
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24 421

## 27 422 **Indigenous community understandings of measures of success**

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29 423 Indigenous cultural safety can only truly be assessed through the lens of Indigenous  
30  
31  
32 424 patients and communities who ultimately are the recipients of clinical care.(54) It follows  
33  
34  
35 425 that Indigenous patient and community understandings and measures of success are  
36  
37 426 critical to assessing the impact of any Indigenous cultural safety training program.  
38  
39  
40 427 However, the degree of involvement of local Indigenous peoples and communities in the  
41  
42  
43 428 development, implementation, and evaluation of the educational interventions was limited  
44  
45 429 overall and differed across the studies. Table 4 (Summary of Indigenous Involvement in  
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47  
48 430 Curriculum Development, Curriculum Delivery and Research Activities) provides a  
49  
50  
51 431 summary overview. Six out of the 13 peer-reviewed papers included statements  
52  
53 432 describing the ethnic and/or Indigenous identity of the authors. Of these, half (n=3)  
54  
55  
56 433 covered the entire authorship(37, 45, 47) and the remainder (n=3) limited self-location to  
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4 434 Indigenous co-authors.(38 ,41 ,46) For the most part, Indigenous individuals and/or  
5  
6 435 community members contributed to the development and delivery of the curriculum, either  
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8  
9 436 as members of the research team or as local Indigenous community members engaged  
10  
11 437 through participatory and partnered approaches.  
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16 439 Contributions by local Indigenous communities to study evaluations were far more limited,  
17  
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19 440 and rarely drew upon healthcare delivery and/or patient experience. Some established  
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21  
22 441 partnerships with Indigenous run organizations(48-49) whereas others relied upon  
23  
24  
25 442 survey tools that were developed in partnership with Indigenous advisors and  
26  
27 443 communities,(40, 52) however, these were not always locally informed. Others involved  
28  
29  
30 444 Indigenous Elders in the evaluation process.(45, 47) In these examples, the Elders were  
31  
32 445 involved in both the development and the evaluation of the curriculum. Lastly, only one  
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35 446 evaluation focused on healthcare delivery and/or patient experience and included  
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38 447 interviews with Indigenous patients and cultural mentors.(48)  
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## 41 42 43 449 **DISCUSSION**

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45 450 The rapid growth of Indigenous cultural safety training for healthcare professionals is  
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48 451 linked to a global movement to interrupt Indigenous/non-Indigenous health inequities,  
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51 452 which are rooted in persistent colonial attitudes and systems, including anti-Indigenous  
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54 453 stereotyping and racism.(15) The majority of the papers included here provide a rich  
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4 454 description of Indigenous cultural safety training program approaches, content, and  
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6 455 implementation. In contrast, analysis and synthesis of the accompanying evaluations of  
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9 456 these same training programs revealed clear and cross-cutting gaps in the demonstration  
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11 457 of clinical- and/or system-level impacts, even though these are commonly referenced as  
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14 458 desired outcomes. The majority of evaluations were limited in focus to learner  
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16 459 experiences and self-reported practice outcomes. For example, Kerrigan and  
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19 460 colleagues(47); Brewer and colleagues(39) and Barajas(37) all suggested, through their  
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22 461 evaluations, that the training programs resulted in changes in self-reported behaviour and  
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24 462 as such, intention and practice. These outcomes however, are subject to self-reporting  
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26  
27 463 response bias such as social desirability. While many of the studies were able to  
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30 464 demonstrate some level of impact on knowledge and attitudes towards Indigenous  
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32 465 peoples by learners, none of these studies were able to establish an observable impact  
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35 466 with respect to a shift towards more culturally safe and clinical practice guideline adherent  
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38 467 healthcare for Indigenous patients.

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#### 41 42 43 469 **Evidence of shifts in knowledge and attitudes; but evidence-base is limited**

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45 470 Self-reported shifts in knowledge and attitudes regarding Indigenous peoples did improve  
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48 471 across most of the studies.(37-41, 45-47, 51-52) Although limited, two of the studies  
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51 472 suggested that these shifts may be sustained over time.(38-39) However, when  
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53 473 considering the stated impact of these studies, it is also important to take into account the  
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56 474 many limitations inherent in the study design. Evaluation studies relied upon voluntary

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4 475 self-selection. Sample sizes were generally small and those that were longitudinal  
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6 476 showed significant baseline to post-intervention loss to follow-up. Eight of the 13  
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9 477 evaluations involved pre-post assessments involving surveys and/or focus groups.(38,  
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11 478 40-41, 45, 48-49, 51-52) Only one of these included a control group.(49) In addition, only  
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13  
14 479 eight of the studies included validated quantitative surveys that employed scales.(38,40-  
15  
16 480 41, 45, 48-49, 51-52) As a result, the shifts in knowledge and attitudes can 'at best' be  
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18  
19 481 correlated with the described intervention and are limited by several biases arising from  
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21  
22 482 the dynamics of course evaluation and marking, participant optimism and in some  
23  
24 483 instances, the lack of anonymity as well as voluntary and low response rates. For the  
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26  
27 484 most part, when the described impact was an observable increase in knowledge or shift  
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30 485 in attitudes, studies also tended to focus on participant experience of the program. These  
31  
32 486 measures highlight how participants expressed gratitude regarding what they learnt and  
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35 487 spoke to how this might have improved their confidence in working with Indigenous  
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38 488 patients going forward. These shifts in confidence, although surely positive, cannot be  
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40 489 interpreted as evidence of improved quality of care towards Indigenous patients in the  
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43 490 healthcare system.

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48 492 **Very little evidence of patient-focused impacts and no measures of systems-level impact**

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50 493 Cultural safety by definition can only be determined and evaluated by the person receiving  
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53 494 the care and their family,(54) yet only three of 13 studies included tools designed to  
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56 495 evaluate patient experience: a subset of patient interviews post-intervention(48) and

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4 496 pre/post file audits.(44, 49) Interestingly, Liaw and colleagues saw no impact, and  
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6 497 concluded, that “the lack of effect of the intervention may be attributable to study design  
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8 498 limitations, complex and indirect relationship between the intervention and the outcome  
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10  
11 499 measures, or contextual factors that influenced the fidelity of the intervention at the  
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13  
14 500 Medicare Local/PHN level and its ability to achieve measurable changes in the target  
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16 501 behaviours.”((49) p267) None of the studies attempted to measure adherence to clinical  
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18  
19 502 practice guidelines, a critical outcome measure which is typically associated with provider  
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21  
22 503 training outcomes and could be evaluated through the use of standardized patients(55-  
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24 504 57), ideally unannounced, or through file audits of clinical care.(58, 59) Kirkpatrick has  
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27 505 argued that it is “difficult, if not impossible to evaluate the impact of training on an  
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30 506 organization due to an inability to separate the variables which could be attributed to other  
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32 507 factors.”((60)p59) In this study, we focused on interventions implemented at the level of  
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35 508 the healthcare provider, however, the approach does not limit the evaluation to individual  
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38 509 level measures, as cultural safety training of healthcare providers can have  
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40 510 organizational-level impacts. None of the studies evaluated systems-level changes that  
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43 511 may have been associated with individual training. Understanding the networked effect  
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46 512 of how training participants subsequently influence their colleagues will be important  
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48 513 going forward. Hulko and colleagues(45) noted that cultural safety research in general  
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51 514 needs to advance tools that will measure these effects, and noted that organizational  
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53 515 change will require institutional supports and policy changes that encourage healthcare  
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56 516 professionals to implement culturally safe practices.

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6 518 **Impactful specific training approaches, strategies, formats or content**  
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9 519 The application of purposeful, evidence-based, pedagogical theory and practices that  
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11 520 advance pre-requisite knowledge, self-awareness and skills is critical to the success of  
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14 521 cultural safety training and education programs. A number of the reviewed studies  
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16 522 described how specific training approaches, formats or content may have contributed to  
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19 523 impact, however, most of the authors were also careful to note the limitations of their  
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21  
22 524 outcomes and the need for further research to clarify whether and if so, how, approach  
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25 525 and content of the training program contributed to the outcomes. Some authors also  
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27 526 described how variation between past and current evaluations of Indigenous cultural  
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30 527 safety, including conceptual frameworks, measurement tools and aims, resulted in an  
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32 528 overall lack of consensus and limited the development of an evidence-base.(39, 46)  
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35 529 Hinton et al(44) spoke to the value of a participatory action-oriented study design that  
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38 530 incorporated institutional leadership as change agents and clinical champions to  
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40 531 encourage recruitment and uptake. This was further supported by Brewer et al.(39) who  
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43 532 observed low uptake and argued that incentives, particularly over the longer term, were  
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46 533 not always effective and that to improve uptake, and consequently evaluation, training  
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48 534 ought to be “compulsory or obligatory” and recommended organizational commitment and  
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51 535 team involvement. Implementing mandated training alongside appropriate evaluations  
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53 536 using file audits, simulation and/or standardized patients will undoubtedly require training  
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4 537 and evaluation protocols that address arising concerns of participant healthcare  
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6 538 professionals.

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11 540 The evidence was limited as to whether or not inclusion of Indigenous peoples and  
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13  
14 541 communities contributed to successful outcomes, although a number of the studies  
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16 542 referenced various components, such as Indigenous vodcasts, guest speakers, cultural  
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19 543 mentors, and academic lecturers as key to the programs they evaluated. Liaw and  
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22 544 colleagues concluded that the strength of their program may have been resultant from  
23  
24 545 the inclusion of cultural mentors who, when “working with practice staff in their own  
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27 546 environment, were effective translators of cultural respect theory and knowledge, as  
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30 547 formalized in the toolkit and delivered by the workshop, into practice.”((48) p391) Hinton  
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32 548 and colleagues(44) also made similar observations regarding cultural advisors, who were  
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35 549 involved in the action-oriented programming and group sessions.

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### 39 40 551 **Strengths and limitations**

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42 552 We acknowledge that classic systematic review methods have been developed outside  
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45 553 of Indigenous contexts, without explicit alignment to Indigenous worldviews, community  
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48 554 requirements, and methodologies. Our team of Indigenous and allied scientists and  
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51 555 Indigenous health service leaders built upon existing tailored Indigenous systematic  
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53 556 review methodologies(27-29) to implement a method aimed at optimizing relevance for  
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56 557 Indigenous peoples through: (1) co-design, co-leadership and co-authorship by leading  
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4 558 Indigenous methods scholars and Indigenous cultural safety educators, ensuring that  
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6 559 their expertise and knowledge was centred throughout the project; (2) direct involvement  
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9 560 of a senior Indigenous scholar and methodologist (JS) in all stages of the review, analysis  
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11 561 and synthesis; (3) application of a data extraction tool developed in consultation with  
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14 562 Indigenous community partners: the Southern Ontario Aboriginal Health Access Centre  
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16 563 (SOAHAC) (Supplementary File 2) and the WLHQAT, a quality appraisal tool that was  
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19 564 designed at an Indigenous-led research centre in partnership with Indigenous community  
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22 565 members.

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24 566 The review is limited to ICS programs with evaluations that have been published in the  
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27 567 peer-review and grey literature and as such, may not have captured the true breadth of  
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30 568 existing Indigenous cultural safety training programs and related evaluations. To optimize  
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32 569 feasibility and study coherence, we did not include organizational level interventions as  
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35 570 for this initial study. Instead, we limited our focus to interventions directed towards  
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38 571 healthcare providers. We do recognize that it is likely that lasting system-level impacts  
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40 572 will require interventions that are implemented and evaluated at both the individual and  
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43 573 organizational levels and would like to highlight the need for additional research focused  
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45 574 on advancing and evaluating system-level interventions. Lastly, the review was  
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48 575 conducted over a lengthy period of time due to the required extensive and iterative  
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51 576 consultation with community partners and Indigenous study team members in the  
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53 577 development and implementation of the final screening protocol to ensure that we were  
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56 578 centering Indigenous worldviews, experiences, and community considerations.

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6 580 **CONCLUDING REMARKS**

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9 581 Overall, there is a paucity of evidence linking existing Indigenous cultural safety training  
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11 582 interventions to enhancements in non-Indigenous healthcare professionals' knowledge,  
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14 583 culturally safe engagement skills and clinical practice guideline adherence when caring  
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16  
17 584 for Indigenous patients. As researchers and practitioners in this field, we note that these  
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19 585 gaps in rigorous patient-outcome focused scholarship are rooted in systemic limitations  
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22 586 in the resources available to organizations leading this work to carry out and disseminate  
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25 587 comprehensive and cost-intensive evaluations. This systemic under-resourcing and the  
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28 588 linked implementation of non-evidence-based interventions is problematic, inconsistent  
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30 589 with the evidence standards required in other domains of clinical training, and is  
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33 590 commonly associated with the same harmful anti-Indigenous, colonial policies and  
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36 591 practices that training is designed to disrupt. Further research investment, with funds  
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39 592 directed towards Indigenous-led agencies and organizations that are leading the work in  
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42 593 this field, is required to advance training program evaluation design, implementation,  
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45 594 analysis and dissemination. These investments would ensure that both the training  
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48 595 programs and their evaluations meet the dual criteria of excellence in Indigenous health  
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51 596 research: a) methodological rigour and b) alignment with and connection to local, regional  
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54 597 and/or national Indigenous priorities and needs.

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## 599 **AUTHORS' CONTRIBUTIONS**

600 JS and DS conceptualized the systematic review. JS made significant contributions to the  
601 interpretation of the data. CZ carried out the database literature searches. SF and BJH  
602 screened titles and carried out data extraction. BJH and JS carried out the initial analysis  
603 and interpretation of the data and together, generated consensus with SF regarding key  
604 themes. DS commented on high level key themes. BJH, SF and JS drafted sections of  
605 the manuscript and DS commented on the manuscript in progress. All authors contributed  
606 to study design and interpretation of findings, and approved the final manuscript.

## 608 **COMPETING INTERESTS**

609 All authors have completed the ICMJE uniform disclosure form at  
610 [www.icmje.org/disclosure-of-interest/](http://www.icmje.org/disclosure-of-interest/). BJH, SF and CZ declare no competing interests. JS  
611 has no significant competing interests. JS is a sibling of DS. JS and DS are both members  
612 of the Indigenous Cultural Safety Learning Series Advisory Circle in Canada, funded by  
613 San'yas and co-hosted by the Ontario Federation of Indigenous Friendship Centres. The  
614 Indigenous Cultural Safety Learning Series is a webinar series focused on Indigenous  
615 cultural safety. It is guided by an Advisory Circle of Indigenous leaders from across  
616 Canada. DS was employed by the Southwest Ontario Aboriginal Health Access Centre  
617 (SOAHAC) (one of the funding agencies), in the early stages of this review until March  
618 2020. DS is currently employed by San'yas Indigenous Cultural Safety Learning

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4 619 Programs, Indigenous Health, Provincial Health Services Authority as of September  
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6 620 2020. They offer educational interventions and consultation services designed to uproot  
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9 621 anti-Indigenous racism and promote cultural safety for Indigenous peoples. One of the  
10  
11 622 interventions studied included an early version of one of the online training programs  
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13  
14 623 offered by San'yas. It was referred to as Indigenous Cultural Competency (ICC) and was  
15  
16 624 applied as part of a larger intervention in one of the articles included in the systematic  
17  
18  
19 625 review. This version was delivered prior to DS' employment with San'yas. The program  
20  
21  
22 626 is situated within a Provincial Health Services Authority (PHSA) in British Columbia,  
23  
24 627 Canada and operated on a non-profit, cost recovery model through fees charged for the  
25  
26  
27 628 training and with oversight by PHSA Indigenous Health Leadership. All of DS'  
28  
29  
30 629 compensation is subject to PHSA policies and DS is not permitted to receive any  
31  
32 630 compensation or payments outside of salary and benefits. DS' contributions were limited  
33  
34  
35 631 to the conceptual design of the study as well as high level commentary and feedback on  
36  
37  
38 632 high level thematic analyses and draft manuscripts. DS was blinded to the mention of ICC  
39  
40 633 (now San'yas) training materials in any discussions related to higher level thematic  
41  
42  
43 634 analysis.

44  
45 635

## 46 47 48 636 **FUNDING**

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4 637 Dr. Smylie is funded by a Tier 1 Canada Research Chair. This project was also supported  
5  
6 638 by funding from the Southwest Ontario Aboriginal Health Access Centre (SOAHAC) and  
7  
8  
9 639 the St. Michael's Hospital Foundation.

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11 640

## 14 641 **DATA SHARING**

16  
17 642 Most of the data generated or analysed as well as the WLHQAT applied during this study  
18  
19 643 are publicly available. Additional materials are available upon request from the  
20  
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22 644 corresponding author.

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## 28 646 **ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

29  
30 647 Ethics approval and consent to participate were not required for this study.

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26 811 Communication in a Pediatric Emergency Department: An Intervention Design. *J*  
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13 846 Train Dev. 1996; 50(1): 54.

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15 847  
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17 848 **LIST OF ABBREVIATIONS**

18  
19  
20 849 Well Living House Quality Appraisal Tool (WLHQAT)  
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23 850 South Ontario Aboriginal Health Access Centre (SOAHAC)

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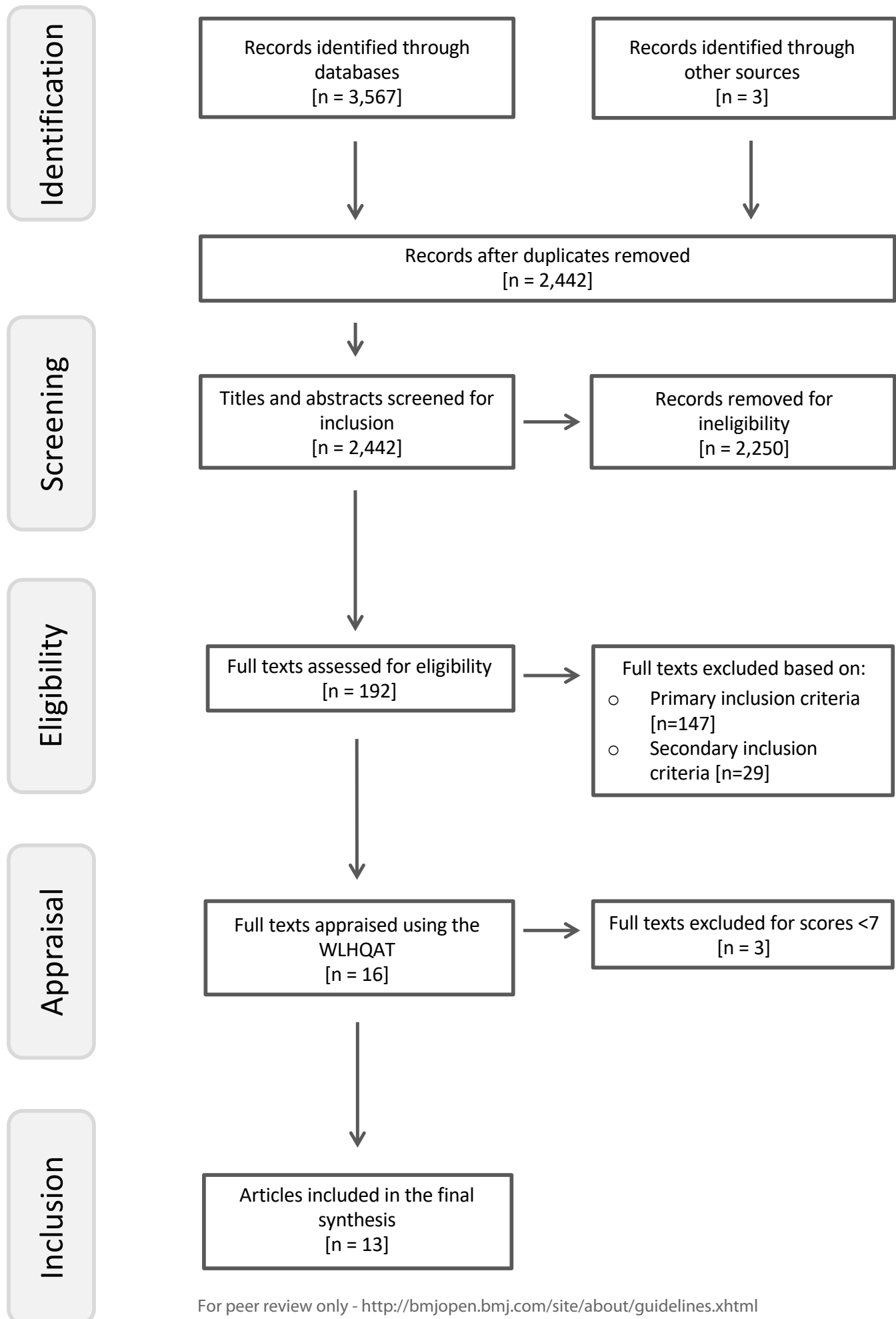
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28 852 **ACKNOWLEDGEMENTS**

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31 853 The authors would like to acknowledge Michèle Parent Bergeron and SOAHAC for their  
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34 854 contributions to the study.

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## Supplementary Figure 2

### Search Strategies:

Below are the full search strategies exactly as run on the fourth search update on May 12, 2022. Three previous searches were carried out using these strategies on September 18, 2018; July 30, 201; and March 9, 2021. The first search on September 18, 2018 was limited to articles published from 2006 and on.

### Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
 2 exp Indigenous Peoples/ 19761  
 3 Oceanic Ancestry Group/ 11661  
 4 United States Indian Health Service/ 596  
 5 Health Services, Indigenous/ 3819  
 6 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 7 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 8 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 9 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 10 amerindien\* or indigene\*).mp. 79690  
 11 6 (indian or indians).ti,ab,kw. 82911  
 12 India/ 115065  
 13 6 not 7 55466  
 14 1 or 2 or 3 or 4 or 5 or 8 128874  
 15 Cultural Competency/ 6278  
 16 Culturally Competent Care/ 2028  
 17 Transcultural Nursing/3442  
 18 cultural diversity/ 12558  
 19 cultural\* competenc\*.tw,kf. 4480  
 20 cultural\* safe\*.tw,kf. 941  
 21 cultural awareness.tw,kf. 717  
 22 cultural\* sensitiv\*.tw,kf. 5526  
 23 cultural\* secur\*.tw,kf.54  
 24 cultural humility.tw,kf. 407  
 25 cross-cultural.tw,kf. 15212  
 26 cultural\* respect\*.tw,kf. 115  
 27 anti-racis\*.tw,kf. 349

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3 23 antiracis\*.tw,kf. 312  
4 24 postcolonial\*.tw,kf. 426  
5 25 colonial\*.tw,kf. 7112  
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7 26 or/10-25 50752  
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9 27 exp Health Personnel/581961  
10 28 "Attitude of Health Personnel"/ 129471  
11 29 "Internship and Residency"/ 57027  
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13 30 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
14 or worker\* or staff or specialist\* or employee\*)).tw,kf. 363535  
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16 31 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
17 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
18 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
19 pharmacist\* or dietician\* or medic\* resident\*).tw,kf. 1374101  
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21 32 or/27-31 1933424  
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23 33 Education/ 21493  
24 34 curriculum/ 83087  
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26 35 competency-based education/ 4429  
27 36 exp education, professional/ 321367  
28 37 exp Inservice Training/ 29907  
29 38 exp Teaching/ 91371  
30 39 exp Teaching Materials/ 123098  
31 40 exp Health Personnel/ed [Education] 63884  
32 41 cultural competency/ed 961  
33 42 Transcultural Nursing/ed [Education] 864  
34 43 exp Culture/ed [Education] 1033  
35 44 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
36 seminar\*).tw,kf. 1604662  
37 45 (professional development or staff development).tw,kf. 13772  
38 46 or/33-45 1870696  
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40 47 9 and 26 and 32 and 46 945  
41 48 limit 47 to english language 934  
42 49 limit 48 to ed=20210308-20220512 123  
43 50 limit 48 to dt=20210308-20220512 111  
44 51 limit 48 to ez=20210308-20220512 111  
45 52 limit 48 to yr="2022 -Current" 50  
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47 54 remove duplicates from 53 155  
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## Embase Classic+Embase &lt;1947 to 2022 May 11&gt;

1 indigenous people/ or alaska native/ or american indian/ or canadian aboriginal/ or first  
 2 nation/ or indigenous australian/ 32329  
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 6 1 exp amerind people/ or exp australian aborigine/ or exp eskimo-aleut people/ or exp na-  
 7 dene people/ 7622  
 8  
 9 2 "maori (people)"/ or native hawaiian/ 2383  
 10  
 11 3 exp oceanic ancestry group/ 9022  
 12  
 13 4 indigenous health care/ 1176  
 14  
 15 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
 16 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
 17 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
 18 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
 19 amerindien\* or indigene\*).ti,ab,kw. 93751  
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 21 6 (indian or indians).ti,ab,kw. 114804  
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 23 7 exp indian/ 40575  
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 25 8 India/ 167974  
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 29 10 7 not 10 58826  
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 31 11 (or/1-6) or 11 153454  
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 33 12 cultural competence/ 7387  
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 35 13 transcultural care/ 4825  
 36  
 37 14 cultural sensitivity/ 1261  
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 39 15 cultural diversity/ 2692  
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 41 16 cultural\* competenc\*.tw. 4546  
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 43 17 cultural\* safe\*.tw. 1038  
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 45 18 cultural awareness.tw. 839  
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 47 19 cultural\* sensitiv\*.tw. 6598  
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 49 20 cultural\* secur\*.tw. 71  
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 51 21 cultural humility.tw. 426  
 52  
 53 22 cross-cultural.tw. 15606  
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 55 23 cultural\* respect\*.tw. 137  
 56  
 57 24 anti-racis\*.tw. 310  
 58  
 59 25 antiracis\*.tw. 294  
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 61 26 postcolonial\*.tw. 375  
 62  
 63 27 colonial\*.tw. 7139  
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 65 28 or/13-28 45229  
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 67 29 exp health care personnel/ 1856636  
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3 31 health personnel attitude/ 88298  
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5 or worker\* or staff or specialist\* or employee\*)).tw.478961  
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7 33 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
8 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
9 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
10 pharmacist\* or dietician\* or medic\* resident\*).tw. 1881277  
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12 34 30 or 31 or 32 or 33 3109487  
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14 35 education/ or continuing education/ or course content/ or curriculum/ or curriculum  
15 development/ or education program/ or "outcome of education"/ 615015  
16  
17 36 in service training/ 16717  
18  
19 37 teaching/ 108269  
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21 38 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
22 seminar\*).tw. 2082644  
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24 39 (professional development or staff development).tw. 15840  
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26 40 35 or 36 or 37 or 38 or 39 2297974  
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32 43 limit 42 to english language 253  
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34 44 limit 43 to dc=20210308-20220512 42

34 **EBM Reviews - Cochrane Central Register of Controlled Trials <April 2022>**

35 **EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 11, 2022>**

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37  
38 1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or  
39 exp Indigenous Peoples/ 327  
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41 2 Oceanic Ancestry Group/ 7  
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43 3 United States Indian Health Service/ 4  
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45 4 Health Services, Indigenous/ 47  
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47 5 (Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First  
48 Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific  
49 Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native  
50 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
51 amerindien\* or indigene\*).mp. 3033  
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5 11 Culturally Competent Care/ 110  
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7 13 cultural diversity/ 79  
8 14 cultural\* competenc\*.tw,kf. 100  
9 15 cultural\* safe\*.tw,kf. 35  
10 16 cultural awareness.tw,kf. 13  
11 17 cultural\* sensitiv\*.tw,kf. 589  
12 18 cultural\* secur\*.tw,kf.8  
13 19 cultural humility.tw,kf. 11  
14 20 cross-cultural.tw,kf. 357  
15 21 cultural\* respect\*.tw,kf. 8  
16 22 anti-racis\*.tw,kf. 9  
17 23 antiracis\*.tw,kf. 1  
18 24 postcolonial\*.tw,kf. 1  
19 25 colonial\*.tw,kf. 34  
20 26 or/10-25 1413  
21 27 exp Health Personnel/10279  
22 28 "Attitude of Health Personnel"/ 2059  
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27 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
28 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
29 pharmacist\* or dietician\* or medic\* resident\*).tw,kf. 147680  
30 32 or/27-31 169128  
31 33 Education/ 608  
32 34 curriculum/ 1584  
33 35 competency-based education/ 89  
34 36 exp education, professional/ 5404  
35 37 exp Inservice Training/ 835  
36 38 exp Teaching/ 4681  
37 39 exp Teaching Materials/ 4501  
38 40 exp Health Personnel/ed [Education] 16  
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40 42 Transcultural Nursing/ed [Education] 0  
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5 seminar\*).tw,kf. 196173  
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### APA PsycInfo <1806 to May Week 2 2022>

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20 2 tribes/ 1259  
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24 Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or  
25 amerindien\* or indigene\*).tw. 31755  
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47 14 cultural\* respect\*.tw. 101  
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51 16 antiracis\*.tw. 650  
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53 17 postcolonial\*.tw. 2067  
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55 18 colonial\*.tw. 6809  
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59 20 exp health personnel attitudes/ 25839  
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61 21 medical residency/ 4825  
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63 22 ((health\* or medical or nurs\* or hospital) adj2 (personnel or provider\* or professional\*  
64 or worker\* or staff or specialist\* or employee\*)).tw.122311  
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23 (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\*  
 24 or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or  
 25 counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or  
 26 pharmacist\* or dietician\* or medic\* resident\*).tw. 579592  
 27 20 or 21 or 22 or 23 654864  
 28 education/ 40342  
 29 curriculum/ or curriculum development/ 34802  
 30 exp continuing education/ or professional development/ 26018  
 31 educational programs/ or educational program evaluation/ or multicultural education/  
 32 36396  
 33 personnel training/ or sensitivity training/ 11256  
 34 training/ or communication skills training/ or sensitivity training/ 27011  
 35 exp teaching/ 131059  
 36 (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or  
 37 seminar\*).tw. 1241080  
 38 (professional development or staff development).tw. 27110  
 39 or/25-33 1267277  
 40 5 and 19 and 24 and 34 599  
 limit 35 to (chapter or "column/opinion" or "comment/reply" or editorial or letter or  
 review-book or review-media or review-software & other) 96  
 35 35 not 36 503  
 36 limit 37 to english language 484  
 37 limit 38 to up=20210308-20220512 41  
 38 remove duplicates from 39 41

### CINAHL Search History

Interface - EBSCOhost Research Databases

Search Screen - Advanced Search

Database - CINAHL Complete

#	Query	Limiters/Expanders	Results
S31	S29 AND S30	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	109
S30	EM 20210308-20220512	Expanders - Apply equivalent subjects	474,059



		Search modes - Boolean/Phrase	
S29	S22 OR S26	Limiters - English Language Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	1,304
S28	S27	Search modes - Boolean/Phrase	1,173
S27	S22 OR S26	Limiters - Published Date: 20060101-20181231; English Language Search modes - Boolean/Phrase	709
S26	S6 AND S25	Search modes - Boolean/Phrase	95
S25	S23 OR S24	Search modes - Boolean/Phrase	1,087
S24	(MH "Cultural Safety/ED")	Search modes - Boolean/Phrase	38
S23	(MH "Cultural Competence/ED")	Search modes - Boolean/Phrase	1,049
S22	S6 AND S12 AND S17 AND S21	Search modes - Boolean/Phrase	1,144
S21	S18 OR S19 OR S20	Search modes - Boolean/Phrase	1,285,878
S20	(professional development or staff development)	Search modes - Boolean/Phrase	73,618
S19	(training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*)	Search modes - Boolean/Phrase	1,144,026

S18	(MH "Education") OR (MH "Curriculum+") OR (MH "Education, Competency-Based") OR (MH "Teaching") OR (MH "Teaching Materials+") OR (MH "Teaching Methods+")	Search modes - Boolean/Phrase	293,141
S17	S13 OR S14 OR S15 OR S16	Search modes - Boolean/Phrase	1,524,544
S16	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*)	Search modes - Boolean/Phrase	1,220,148
S15	((health* or medical or nurs* or hospital) N2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*))	Search modes - Boolean/Phrase	375,539
S14	(MH "Attitude of Health Personnel+")	Search modes - Boolean/Phrase	114,454
S13	(MH "Health Personnel+")	Search modes - Boolean/Phrase	627,401
S12	S7 OR S8 OR S9 OR S10 OR S11	Search modes - Boolean/Phrase	51,961
S11	cultural* competenc* or cultural* safe* or cultural awareness or cultural* sensitiv* or cultural* secur* or cultural humility or cross-cultural or cultural* respect* or anti-racis* or antiracis* or postcolonial* or colonial*	Search modes - Boolean/Phrase	31,303
S10	(MH "Cultural Diversity") OR (MH "Cultural Values")	Search modes - Boolean/Phrase	24,283
S9	(MH "Transcultural Care")	Search modes - Boolean/Phrase	3,296
S8	(MH "Cultural Safety")	Search modes - Boolean/Phrase	778

S7	(MH "Cultural Competence")	Search modes - Boolean/Phrase	11,142
S6	S1 OR S2 OR S5	Search modes - Boolean/Phrase	55,137
S5	S3 NOT S4	Search modes - Boolean/Phrase	12,493
S4	(MH "India")	Search modes - Boolean/Phrase	42,378
S3	TI ( (indian or indians) ) OR AB ( (indian or indians) )	Search modes - Boolean/Phrase	22,181
S2	(Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*)	Search modes - Boolean/Phrase	47,753
S1	(MH "Indigenous Peoples+") OR (MH "Health Services, Indigenous") OR (MH "Indigenous Health")	Search modes - Boolean/Phrase	23,870

## ProQuest Search Strategy

### Search Strategy

Set#	Searched for	Databases	Results
S1	noft((Aborigin* OR Indigenous OR Eskimo* OR Inuit* OR Inuk* OR Metis OR First Nations OR First Nation OR 1st nation OR 1st nations OR "Native Canadian*" OR "Native American*" OR Maori* OR "Pacific Islander*" OR "American Indian*" OR Amerindian* OR "Native Alaska*" OR "Alaska Native*" OR "Native Hawaiian*" OR "Torres Strait Islander*" OR "on-reserve" OR "off-	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	7452

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	reserve" OR tribal OR autochtone* OR amerindien* OR indigene*) AND la.exact("English") AND pd(>20201231)		
S2	noft(("cultural* competenc*" OR "cultural* safe*" OR "cultural awareness" OR "cultural* sensitiv*" OR "cultural* secur*" OR "cultural humility" OR "cross-cultural" OR "cultural* respect*" OR "anti-racis*" OR antiracis* OR postcolonial* OR colonial*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10129
S3	noft((health* OR medical OR nurs* OR hospital) NEAR/2 (personnel OR provider* OR professional* OR worker* OR staff OR specialist* OR employee*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10349
S4	noft((((doctor* OR physician* OR practitioner* OR nurse* OR clinician* OR hospitalist* OR dentist* OR therapist* OR physiotherapist* OR ("occupational therapist" OR "occupational therapists") OR psychologist* OR psychiatrist* OR counsellor* OR ("social worker" OR "social workers") OR midwi* OR paramedic* OR "emergency medical technician*" OR pharmacist* OR dietician* OR "medic* resident*")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	31501
S5	noft(((training OR education* OR learn* OR teach* OR workshop* OR curricul* OR pedagog* OR seminar* OR "professional development" OR "staff development")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	115033
S6	(S1 AND S2 AND (S3 OR S4) AND S5)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	77

## Bibliography of Indigenous Peoples in North America (EBSCOhost)

### 2 Results

(( ((health\* or medical or nurs\* or hospital) N2 (personnel or provider\* or professional\* or worker\* or staff or specialist\* or employee\*)) ) OR ( (doctor\* or physician\* or practitioner\* or nurse\* or clinician\* or hospitalist\* or dentist\* or therapist\* or physiotherapist\* or occupational therapist\* or psychologist\* or psychiatrist\* or counsel?or\* or social worker\* or midwi\* or paramedic\* or emergency medical technician\* or pharmacist\* or dietician\* or medic\* resident\*) ))

AND

( ("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) )

AND

( (training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") )

Limit to 2021-2022, English Language, Academic Journals

### Web of Science

Science Citation Index Expanded (SCI-EXPANDED)

Social Sciences Citation Index (SSCI)

93 Results

((TS=("cultural\* competenc\*" or "cultural\* safe\*" or "cultural awareness" or "cultural\* sensitiv\*" or "cultural\* secur\*" or "cultural humility" or "cross-cultural" or "cultural\* respect\*" or "anti-racis\*" or antiracis\*) AND TS=(training or education\* or learn\* or teach\* or workshop\* or curricul\* or pedagog\* or seminar\* or "professional development" or "staff development") AND TS=(Aborigin\* or Indigenous or Eskimo\* or Inuit\* or Inuk\* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian\* or Native American\* or Maori\* or Pacific Islander\* or American Indian\* or Amerindian\* or Native Alaska\* or Alaska Native\* or Native Hawaiian\* or Torres Strait Islander\* or on-reserve or off-reserve or tribal or autochtone\* or amerindien\* or indigene\*) AND TS=("health care" or healthcare or hospital\* or medical or nurses or doctors)))

Timespan: 2021-03-08 to 2022-05-12 (Index Date)

## Supplementary Figure 3

## Well Living House Quality Appraisal Tool

Citation (Title, Author, Date) [INSERT FOR EACH STUDY]

Local Community Relevance of Method and Measures (Score out of 4)

Did the measures of success reflect local Indigenous community understandings of success?	<p>Yes = 2 (look for: outcomes are derived from community members/ are the outcomes reflecting indigenous concepts evidence provided explicitly in the text where did evaluation take place, who collected evaluation data?)</p> <p>Partial = 1 (hints of including local community values/beliefs/knowledge systems in text and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) indicated that success was not defined by the community)</p>
Had methods and tools been tested and validated previously in a similar Indigenous context and reviewed for relevance by appropriate community members?	<p>Yes = 2 (evidence is provided explicitly in text)</p> <p>Partial = 1 (hints of using a tool that has been used in Indigenous contexts and therefore assumption made by reviewers that evidence is present)</p> <p>No = 0 (nothing was said or author(s) said that the evaluation method/tool has not been used in Indigenous contexts)</p>

Rigour and internal validity of the evaluation method (Score out of 4)

Do the quantitative or qualitative methods meet relevant rigour and internal validity?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p>Generally: Is the study design appropriate for evaluation research question(s)? Are the conclusions supported and justified by the results?</p> <p><u>Quantitative</u>: Is the sample size described and justified? Are the instruments/tools already validated?</p> <p>Are threats to validity addressed (such as confounding factors)?</p> <p><u>Qualitative</u>: Are the participants selected using appropriate strategies (such as purposive sample or until saturation is reached)? Is there clearly articulated theoretical approach/methodology/ data collection methods and analytic lens – do these fit together? Is there evidence of truthfulness of the findings?</p>
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Strength of the Evidence (score out of 4)

Is the evidence strong?	<p>Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1</p> <p><u>Quantitative</u>: Does the evidence have adequate power and statistical significance? Is the response rate reasonable?</p> <p><u>Qualitative</u>: Are there major and convincing themes from triangulation, and/or member checking?</p>
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Total Score:

## Supplementary File 1 – Study Screening Protocol

Screening Protocol

**Working Title:** Wise practices – what we know about the design and implementation of Indigenous cultural safety training programs for service providers: a scoping review

**Primary Research Question:** What are the impacts of Indigenous cultural safety, competency or other educational interventions on non-Indigenous health and social service providers' knowledge, attitudes, and culturally safe practices

**Secondary Research Questions:** Are there specific training approaches, strategies, formats or content

**Date:** October 1, 2018

**Screening software:** colandr <https://colandrapp.com/signin> OR abstrackr <http://abstrackr.cebm.brown.edu/>

**Level 1 Screening: Titles and Abstracts**

	Yes	No	Unclear
Does the title/abstract indicate that the article is specific to <u>Indigenous contexts</u> in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the title/abstract indicate that the article explores <u>educational interventions (workshops, training, coursework, sessions, etc.)</u> that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the title/abstract indicate that the article focuses on education for <u>adult learners who provide services</u> (e.g. health services) to Indigenous peoples?			

- If all yes, include
- If all yes and some unclear, include
- If one no, exclude

## Supplementary File 1 – Study Screening Protocol

## Level 2 Screening: Full-Text

	Yes	No	Unclear
Is the article specific to <u>Indigenous contexts</u> in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the article explore <u>educational interventions (workshops, training, coursework, sessions, etc.)</u> that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the article focus on education for <u>adult</u> learners who <u>provide services</u> (e.g. health services) to Indigenous peoples?			
Does the article include a <u>information about outcomes</u> for the educational intervention (definition of outcome is broadly defined and can include, for example, microaggression scales, academic understanding, anti-racist measures etc.)?			

- If all yes, include
- If one no, exclude



Supplementary File 2

## Data Extraction Form for Indigenous Cultural Safety Education for Healthcare Providers

Reviewer Name:		
Authors:		
Year:		
Title:		
Journal:		
<b>Study Characteristics</b>		<i>Page</i>
Type of publication (manuscript, report, etc.)		
Type of study (quantitative, qualitative, mixed methods)		
Study Design (RCT, quasi-experimental, qualitative)		
Location and time frame		
Aim of the study		
<b>Population</b>		<i>Page</i>
Discipline		
Sampling & recruitment method		
Inclusion and exclusion criteria		
Data sources (primary/secondary data)		
Notes:		
<b>Cultural Safety</b>		<i>Page</i>
Does the article apply a definition of cultural safety, competency or sensitivity that includes addressing/eliminating anti-Indigenous racism, bias and/or stereotyping?		
Is this applied to the intervention?		
Does the article apply an anti-racist focus in the design and/or implementation of cultural safety, competency, etc. interventions?		
Is it applied to the intervention?		

## Supplementary File 2

1	Notes:	
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6	<b>Intervention detail</b>	<i>Page</i>
7	Type of intervention:	
8	psychological, psychosocial,	
9	educational and alternative	
10	interventions	
11	Cultural component to	
12	intervention	
13	<b>Brief Name:</b> name/phrase that	
14	describes intervention	
15		
16	<b>Why:</b> describe rationale, goal,	
17	theory or elements essential to	
18	the intervention	
19	<b>What - Materials:</b> Describe	
20	any physical or informational	
21	materials used in the	
22	intervention, including those	
23	provided to participants or	
24	used in intervention delivery	
25	or in training of intervention	
26	providers. Provide information	
27	on where the materials can be	
28	accessed (e.g. online	
29	appendix, URL).	
30		
31	<b>Procedures:</b> Describe each of	
32	the procedures, activities,	
33	and/or processes used in the	
34	intervention, including any	
35	enabling or support activities.	
36		
37	<b>Who:</b> For each category of	
38	intervention provider (e.g.	
39	psychologist, nursing	
40	assistant), describe their	
41	expertise, background and any	
42	specific training given.	
43		
44	<b>How:</b> Describe the modes of	
45	delivery (e.g. face-to-face or	
46	by some other mechanism,	
47	such as internet or telephone)	
48	of the intervention and	
49	whether it was provided	
50	individually or in a group.	
51		
52	<b>Where:</b> Describe the type(s)	
53	of location(s) where the	
54	intervention occurred,	
55	including any necessary	
56	infrastructure or relevant	
57	features.	
58		
59	<b>When and How:</b> Describe the	
60	number of times the	
	intervention was delivered and	

Supplementary File 2

1 2 3 4 5 6	over what period of time including the number of sessions, their schedule, and their duration, intensity or dose.		
7 8 9 10 11	<b>Tailoring:</b> If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how.		
12 13 14 15 16	<b>Modifications:</b> If the intervention was modified during the course of the study, describe the changes (what, why, when, and how).		
17 18 19 20 21 22 23 24	<b>How well: Planned:</b> If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them.		
25 26 27 28 29	<b>Actual:</b> If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned.		
30	<b>Evaluation</b>		<i>Page</i>
31 32 33	Type of study (RCT, case study, etc.)		
34 35	Brief methods overview		
36 37 38	Data collection tools/methods		
39 40 41 42	Outcome measure description (primary and secondary)		
43 44 45	Outcome specific to client level change (y/n)		
46 47	Outcome specific to clinician level change (y/n)		
48 49 50	Outcome specific to institutional level change (y/n)		
51 52 53 54 55	Notes:		
56	<b>Results</b>		
57 58		<i>individual</i>	<i>institutional</i> <i>other</i>
59	Cultural safety outcome		

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Supplementary File 2

1	Other outcome			
2	<b>Other Information</b>			
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4	Authors' conclusions			

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For peer review only



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	pg.1
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 2-3
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 3-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 10-11
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5 & 10
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Suppl. Fig. 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 10-12
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 10-12 & Suppl. Files 1 & 2
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 10-12
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 10-12
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 10-12; Suppl. Files 1 & 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 11-12
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 14-15
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A



## PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 15 & Suppl. Fig. 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 15
Study characteristics	17	Cite each included study and present its characteristics.	pg. 15-17 & Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Tables 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 15-17
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 17-24
	23b	Discuss any limitations of the evidence included in the review.	pg. 3 & 24-25
	23c	Discuss any limitations of the review processes used.	3 & 24-25
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 21-25
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Not Registered; Publicly available via link
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared. <a href="http://www.wellivinghouse.com/indigenous-cultural-safety-protocol/">http://www.wellivinghouse.com/indigenous-cultural-safety-protocol/</a>	
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 27
Competing interests	26	Declare any competing interests of review authors.	pg. 26-27
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 27

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi:10.1136/bmj.n71

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