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Research

Reporting Māori participation in paramedic education and the EMS workforce in New Zealand

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Abstract

Introduction
Indigenous people have poorer health outcomes and are under-represented in the general healthcare workforce. This study aims to: i) quantify Māori participation in paramedic education and the Emergency Medical Service (EMS) workforce in New Zealand, ii) compare these with reported Māori participation rates across healthcare education and the general healthcare workforce, and iii) identify factors that may promote or inhibit Māori engagement in the sector.

Methods
Providers of tertiary paramedic education and EMS systems were surveyed and relevant literature was reviewed.

Results
Māori averaged 7.5% of total enrolments in tertiary paramedic education over a 5 year period and, in 2013, represented 5% of the total EMS workforce.

The literature review included 14 publications. Māori participation across the general healthcare workforce is low. Factors promoting Māori tertiary enrolment include the desires to attain a career, enhance Māori health and have a steady income. Barriers inhibiting academic studies include inadequate support, low academic and socio-economic backgrounds and the absence of a culturally safe learning environment. Aspects promoting workforce engagement include clear career pathways, support for workforce development, having role-models, mentors and leaders in the profession, and working in a culturally supportive environment.

Conclusion
Māori are under-represented in the EMS sector and further research is required to determine which factors promote and inhibit participation. Recruitment and retention processes should be reviewed by employers and educators and teaching strategies within paramedic programmes reconsidered. Initiatives aimed at engaging Māori in the health workforce should ensure they promote paramedicine as a potential career choice.

Keywords
emergency medical services; culture; Maori; ethnicity; Indigenous people

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Introduction

Indigenous people in the Pacific region suffer significantly worse health than non-indigenous people (1). Māori, the indigenous population of New Zealand (NZ), make up 15% of the nation's population of 4.5 million (2). Māori have greater exposure to risk factors and poorer health than other New Zealanders (3,4). Consequently, Māori life expectancy is 7 years less than non-Māori (5) with higher mortality rates from chronic and infectious diseases and injuries than other New Zealanders (6).

Emergency medical services (EMS) provide unscheduled healthcare in the uncontrolled pre-hospital setting with limited personnel and resources (7). Paramedics are frequently the first medical contact in the patient journey at a time of immense personal distress, and the nature of this initial contact may have ramifications for the patient experience throughout the healthcare continuum and in future healthcare contacts. Paramedics also have the opportunity to promote positive health interventions during less acute call-outs. Given this unique position within the healthcare system it is vitally important that paramedics treat Māori patients in a way which is culturally appropriate.

It has been widely proposed that healthcare workforces should reflect the community they serve (8,9). This may contribute to counteracting different access to, and quality of, healthcare and entrenched discrimination within the healthcare system itself (10). Failure to address differences in culture and language has been associated with patients from ethnic minorities receiving fewer healthcare interventions and experiencing more adverse incidents (11). In NZ, Māori healthcare professionals can provide a detailed awareness and understanding of culturally based issues that are essential in clinical encounters (12). Developing the workforce to increase Māori participation is a key strategy in addressing health inequalities to improve Māori health (13).

This study undertakes to determine Māori engagement in the profession of paramedicine. In particular, it aims to quantify Māori participation in paramedic education and the EMS workforce in NZ, establish reported Māori participation rates across healthcare education and the general healthcare workforce, and identify factors that may promote or inhibit Māori engagement in the sector.

Methods

Two methods were used in this study: an assessment of prevalence and a literature review. First, Māori participation in the EMS student and workforce populations was quantified. Senior staff at Auckland University of Technology (AUT) and Whitireia Polytechnic, the only NZ tertiary institutions that offer undergraduate degree programs in paramedicine, were contacted by email and invited to contribute data on the ethnic composition of student enrolments to the study. Likewise, St John New Zealand (the EMS provider for 90% of the NZ population (14) and Wellington Free Ambulance Service (the only EMS providers in NZ) were canvassed by email on the ethnic structure of their paramedic staff. Where multiple ethnicities were identified, a single ethnicity was assigned using the New Zealand Ministry of Health prioritised output system (15). This gives precedence to identifying ethnicities of small size and policy importance. The order of prioritisation at the broadest category level is: Māori, Pacifika, Asian, Other and European (15).

Second, the literature was reviewed to quantify participation and to identify factors promoting and inhibiting both tertiary enrolment and workforce retention of Māori across the general healthcare workforce. A single researcher carried out the literature search using MEDLINE and CINAHL databases. The search strategy combined three topic areas (Table 1). In order to ensure currency, papers were excluded if they were published before 2003. The abstracts were manually reviewed and included if they described Māori engagement with healthcare in tertiary study or the workforce. Finally, the full paper was reviewed against the same criteria. Grey literature sources were also searched and relevant publications included if they met the same criteria.

All data received was anonymised and aggregated. As the research did not enrol participants or use health information it did not meet the requirements for formal review by the AUT Ethics Committee (16).

A Māori-centred approach was used with the research arising from the concerns of a Māori researcher and with a clear relation to Māori goals on health workforce participation (17).

Search topic	Key search terms
healthcare professions	health profession*, paramedic*, nurs*, doctor, midwife, physio*, podiatrist, EMS, EMT, pre?hospital, ambulance
participation	workforce participation, occupation*, career, recruitment, employment, student
target ethnicity	Māori

Table 1. Terms used in the search strategy

Results

EMS tertiary education survey

Over the 5 years from 2008 to 2012, for enrolments in NZ undergraduate paramedicine degree programs, on average, 7.5% of students self-identified as Māori (Table 2). A chi-square goodness of fit test indicates that there was a significant difference in the proportion of Māori students identified in the 5 year sample (7.5%) as compared with the value of 15% of Māori in the total population of NZ (2) χ^2 (1, n=1750) = 76, p<0.001.

Student	Year of enrolment					Total
Ethnicity	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	n (%)
Māori	19 (7.1)	23 (8.3)	6 (7.9)	32 (7.7)	32 (6.9)	132 (7.5)
Pasifika	5 (1.9)	5 (1.8)	7 (2.1)	8 (1.9)	6 (1.3)	31 (1.8)
Asian	7 (2.6)	6 (2.2)	10 (3.0)	12 (2.9)	12 (2.6)	47 (2.7)
Other	14 (5.3)	12 (4.3)	15 (4.6)	19 (4.6)	17 (3.6)	77 (4.4)
European	220 (82.7)	231 (83.4)	270 (82.3)	341 (82.6)	398 (85.4)	1460 (83.4)
Not stated	1 (0.5)	0 (0.0)	0 (0.0)	1 (0.2)	1 (0.2)	3 (0.2)
Total	266 (100)	277 (100)	328 (100)	413 (100)	466 (100)	1750 (100)

Table 2. Enrolments, by ethnicity, in New Zealand paramedicine programs from 2008 to 2012 (15)

EMS workforce survey

In 2013, for the EMS provider St John New Zealand, 4.3% of the employed paramedics self-identified as Māori (Table 3). When both employed and volunteer paramedics were included, the relative proportion remained comparable at 5.1% of the combined workforce. Ethnicity data was unavailable from the Wellington Free Ambulance Service.

Paramedic ethnicity	Employed EMS staff	(%)	Volunteer and employed EMS staff	(%)
Māori	58	(4.3)	201	(5.1)
Pasifika	5	(0.4)	13	(0.3)
European	1080	(80.1)	2958	(74.4)
Asian	12	(0.9)	46	(1.2)
Other	52	(3.9)	89	(2.2)
Not stated	141	(10.4)	669	(16.8)
Total	1348	(100.0)	3,976	(100.0)

Table 3. St John EMS staff, by ethnicity, 2013 (15)

Healthcare education and workforce literature review

Thirty-five publications or reports were identified in the literature search. After review of the abstract and full papers, 14 studies and reports met the inclusion criteria. No publications were identified that specifically addressed Māori participation in the EMS sector.

Quantifying healthcare education and workforce participation

Two studies report on relative proportions of Māori student enrolments in healthcare. A survey of eight healthcare programs at one NZ university in 2010 found that Māori accounted for 6.3% of student enrolments (8). At one of NZ's two medical schools, Māori students averaged only 1.3% of total enrolments over the 5 years from 2004 and 2008 (18).

Māori nurses comprised 7.2% of the practising registered nursing workforce in 2011 (19). Yet, even in areas such as South Auckland where Māori are over-represented in the local population, under-representation in the nursing workforce persists (20). In the medical workforce, only 2.9% of NZ's doctors identified as Māori in 2012 (21).

Factors affecting healthcare education and workforce participation

Māori engagement in education is promoted by the desire to have a career and steady income (22), to enhance one's own people's health (22-24), having scholarships and pathways that increase Māori numbers (20,24-26) and having access to affordable childcare, appropriate mentor support and curriculum delivery in a way that is relevant to the Māori worldview (22,24,26). Barriers to university study include inadequate pre-entry and entry support, coming from low academic and disadvantaged socioeconomic backgrounds (20,22), commuting long distances, being the first in the family to undertake tertiary study, family pressures and commitments, being older students with children and the absence of culturally equipped tutors, role-modelling and mentors who are Māori (20,22,23). These factors interact, compounding their effects.

Factors promoting Māori engagement in the health workforce are clear career pathways (23), support for postgraduate studies (20,27), creating mentoring and clinical supervision roles to support workforce development (20,23,27), having role-models, mentors and leaders in the profession (23), being able to provide culturally appropriate services (28), working in a culturally supportive environment and attractive salaries and professional recognition (23,27,29). Workforce participation is inhibited by effects of chronic overwork, injury, assaults (27), and the stress associated with balancing employer and professional expectations with Māori patients' expectations of the care-provider as a Māori (30), which increases when staff work and reside in the same community (23,29).

Discussion

Ideally, healthcare workforces should reflect the community they serve. Paramedics as the first medical contact have a pivotal role within the healthcare system. The quality of early healthcare interactions may influence patient choices to pursue treatment or to disengage from the healthcare system and also future decisions on utilising EMS in emergencies. Māori in NZ have worse health status, a shorter life expectancy and experience greater barriers to accessing healthcare. It is vital that paramedics can provide culturally appropriate care such as recognising the centrality of the family/whanau group in decision-making about the patient's care, and understanding attitudes to death and the grieving process to inform the care of patients in extremis.

Māori participation as both students and professionals in the general healthcare workforce is lower than the population proportion predicts. This is the first study to establish that this pattern extends to the profession of paramedicine with significant under-representation of Māori in both EMS education and the workforce.

In quantifying Māori engagement within the EMS profession in NZ, the current study has generated a number of additional questions. The proportion of Māori participating in the EMS workforce is even lower than the proportion observed in paramedic education. This may signal a problem with recruitment into, or retention within, the EMS workforce. Non-completion of education programs, choosing not to enter the EMS workforce after graduation, or accepting employment with overseas rather than local EMS providers are all possible explanations for a low translation from education programs into the NZ EMS workforce. Although most of the research on factors influencing recruitment and retention of Māori into the healthcare sector has been undertaken within the nursing profession, it is probable that similar factors promote and inhibit Māori participation in paramedic education and the EMS workforce. However, further research is required to support this assumption and to establish whether other effects are implicated in the EMS setting.

In contrast to NZ's overall ageing population structure, the Māori population is young and growing. Failure to engage Māori in the healthcare professions may have consequences on both Māori health outcomes and for the health sector overall. This study also detects under-representation in the EMS profession by other ethnic minority groups. For example, the number of Pasifika people working in EMS is low. The current findings also broach the more general question of participation by indigenous people in other countries, such as Australia, in local paramedic education programs and EMS workforces.

Limitations of this study

Several limitations must be noted in relation to the findings. Over 10% of the employed EMS staff and nearly 17% of the total EMS personnel did not state their ethnicity. Therefore, it is possible that the data under-reports Māori participation in the EMS workforce. Furthermore, workforce ethnicity data was only obtained for 1 year and may not be illustrative of Māori participation in the EMS workforce over a longer time period. A more comprehensive survey of workforce ethnicity composition with longitudinal data is required to confirm the results reported here. Finally, the review was constrained by the absence of literature specific to the paramedic profession.

Conclusion

Māori are under-represented in paramedic education enrolments and the EMS workforce. Further investigation is required to confirm the extent of the lack of engagement, especially in the workforce, and to identify supportive strategies if Māori participation in the EMS sector is to increase. Recruitment and retention processes should be reviewed by employers and educators alike and in addition, teaching strategies within paramedic programs reconsidered. Initiatives aimed at engaging Māori in the health workforce should ensure that paramedicine is promoted as a potential career choice.

Competing interests

The authors declare they have no competing interests.

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