



Improving participation in breast screening in a rural general practice with a predominately Māori population

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Abstract

Aim The aim of this paper is to describe the strategies used to increase breast-screening participation in a rural general practice with a high Māori population.

Method A retrospective process evaluation.

Results The participation rate increased from less than 45% in 2003 to about 98% in both 2005 and 2007.

Conclusion The general principles underlying the specific strategies are discussed and may be used by other General Practices and Primary Care Organisations to assist with improving breast screening participation.

Significant ethnic inequalities in breast cancer diagnosis and outcomes have been documented. Over the period 1996 to 2001, Māori women were 21% more likely to be diagnosed with breast cancer than non-Māori women.

Once diagnosed, Māori women were 68% more likely to die from the disease than non-Māori women. Māori women are more likely to be diagnosed with later stage disease; however, differences in stage do not account for all the disparities in outcome.¹ Improving population outcomes and eliminating ethnic inequalities in breast cancer stage at diagnosis and mortality may be achieved through initiatives across the breast cancer pathway—i.e. detection, diagnosis, and treatment.

Early detection of breast cancer can be achieved through breast cancer screening programmes.² In Aotearoa New Zealand, a publicly funded organised breast cancer screening programme (BreastScreen Aotearoa; BSA) for women aged 50 to 64 years has been available since 1998 and was extended to include women aged 45–69 in 2004. High levels of participation in screening programmes, and effective and timely follow-up of identified abnormalities, are necessary for screening to lead to improvements in breast cancer outcomes and inequalities.

Population coverage in BSA is increasing but remains below targets. For the 2 years to December 2006, 60% of eligible women aged 50–64 years had participated in BSA (target 70%). Ethnic inequalities in participation among eligible women in this age group are evident with 41% of Māori, 41% of Pacific, and 62% of Other ethnic group participating in the programme. In the area served by BreastScreen Midland (BSM), participation was 38.8% for Māori, 42.2% for Pacific, and 64.7% for Other ethnic group women.³

Reasons for non-participation in breast cancer screening include practical difficulties such as access to transport, travel time, and inconvenience. Twenty percent expressed concern or fear of the procedure, or were influenced by negative reports from other women.⁴

Māori and Pacific ethnic group women report higher levels of worry about developing breast cancer than New Zealand European and Asian women.⁵ Rural women have been shown to have lower participation in breast cancer screening than urban women, although breast cancer outcomes are similar in both groups.⁶⁻⁸

The Te Whānau ā Apanui Community Health Service ('TWAACH', 'the Service') provides primary health care to a rural, coastal, predominantly Māori community in the Eastern Bay of Plenty. Health services are provided to the population living in the Te Whānau ā Apanui rohe (tribal region) with a 220 kilometre boundary from Te Taumata o Apanui in the south to Potikirua in the north.

At the time of screening in 2005 the registered practice population, excluding casual patients, was 1680 people, of whom 90.5% were Māori. TWAACH has one full-time equivalent (FTE) general practitioner, 2.5 FTE nursing staff and two administration staff.

BSA breast screening is undertaken in a mobile breast screening unit that visits the district every two years. The unit provides breast screening at Waihou Bay for 3 days and at Te Kaha for 6 days. At other times women have to travel for 2 - 3 hours to Whakatāne to access breast screening services. In 2003, organising breast screening in this area was undertaken by the region's BSA provider and followed standard BSA procedure. These are summarised in Table 1. Participation in breast screening had been low.

In 2003 it is estimated no more than 45% of eligible women had a mammogram when the mobile unit visited the area. This paper describes issues that were identified to address participation rates and strategies that were implemented to increase participation in breast screening when the mobile unit visited in 2005 and 2007.

Method

A retrospective process evaluation of the strategies used to improve the uptake of breast screening was undertaken and is reported here. Qualitative information was primarily obtained from service staff that had been involved with the breast screening initiative. BreastScreen Midland provided information about the systems that had been in place in 2003. Quantitative data about screening coverage was obtained from the computerised practice management system (PMS).

Implementing change in 2005—Prior to the 2005 breast screening biennial visit, service staff discussed the previously low participation rate and how this could be increased in the 2005 round. Issues that may have affected the uptake of breast screening in 2003 were identified by talking with women in the eligible age groups, other community groups, and service staff. The TWAACH administrator was the project leader and was responsible for the organization and coordination of all the identified strategies.

The issues that were identified as having adversely affected participation in 2003 are detailed in Table 1. After identification the staff devised strategies to address these issues. Broadly speaking the strategies can be divided into two categories: increased local involvement, and reducing barriers to participation.

Increased local involvement—Involvement of the TWAACH and the local community:

- Facilitated the provision of information about and promotion of breast screening,
- Improved the identification of eligible women, and
- Improved the registration and appointment making processes.

Table 1. BreastScreen Midland processes for arranging and providing breast screening in 2003, and issues identified by Te Whānau ā Apanui Community Health Service

BreastScreen Midland (BSM) process in 2003	Issues that needed to be addressed
BreastScreen Midland provides health promotion and information about BSM screening programme and breast screening	Lack of information and knowledge about breast screening, risks and benefits of screening, and how to access the screening service among women Many women did not know when the mobile unit was in the area or the duration of its stay as invitations were only sent to women who had previously undergone breast screening or had enrolled themselves in the previous two years
BreastScreen Midland responsible for implementation of screening programme	Limited involvement of the local health service in the screening process Service involvement had been limited to: <ul style="list-style-type: none"> - parking of the mobile screening units beside the clinics - display of posters about screening in the practice rooms, and - opportunistic encouragement to participate in screening.
Identification of eligible women Eligible women who had not previously had a mammogram had to initiate contact with BSM through the BSA 0800 phone number to start the registration process	Incomplete registration of eligible women: <ul style="list-style-type: none"> - some women do not have access to a phone - others did not feel comfortable making use of the 0800 number
Registration and appointment process BSM sends women with previous breast screen invite and appointment Registration forms sent to 'new' women who had contacted BSM Registration forms completed and returned to BSM BSM makes appointment time, date and location for screening. Letter of invitation with appointment details sent to women.	Unreliable mail service in the area also caused problems with receiving registration forms, the return of registration forms and receiving appointment times. Some women had literacy problems that interfered with their ability to participate in the registration process Booking of appointments by BSM was associated with a number of problems that affected women: <ul style="list-style-type: none"> - appointments were arranged for inconvenient times - women who lived in the same house, or in the same area were not booked together - women were booked for an appointment at the wrong location - appointments often sent out well in advance with some women forgetting their appointment time
Mammogram taken Women attend at location, date and time of appointment	Women had problems with transport to the site of the mobile unit
Notification of breast screening results Normal breast screening – women notified by letter from National Screening Unit (NSU) Abnormal breast screening – women phoned by the breast care nurse who was located in Rotorua	Women with abnormal mammograms were contacted about their result and the need for follow-up several days after others had received a letter advising them their breast screen was normal. The women who were left waiting for their result found this a very stressful experience
Follow-up of women with abnormal breast screens in Rotorua Appointment for follow up made during phone call with breast care nurse	Some women had difficulty with transport. Appointments were made for times that were incompatible with the length of time required for travel (e.g. given an early morning appointment without considering travel time of 3–3 ½ hours to get to the appointment). Appointments not made for groups of women
Results of follow-up given at appointment with breast surgeon	Requirement to travel to Rotorua problematic. For example difficulties with transport, travel times and appointments, costs of having to make a second trip to Rotorua within 2–3 weeks. Some women felt uncomfortable receiving results from a virtual stranger and preferred the local GP to provide results.

Following a number of discussions BSM agreed that the Service could enrol and make appointments for women and send this information to BSM who then sent women the standard information pack and a letter confirming the appointment time. This agreement reduced the number of contacts between women and BSM that were necessary for successful registration and appointment making. The Service's involvement ensured that local factors which impacted on women's ability to access BSM services and attend breast screening were taken into account. However, BSM retained final control of the mobile unit timetable.

A master list of eligible women, created from the PMS, was used to generate letters inviting women to enrol for breast screening. Two weeks prior to screening the Service staff made phone or face-to-face contact with women who had not enrolled, discussed breast screening, and invited them to enrol. The use of the Service for the coordination of registration and appointments overcame barriers associated with unreliable rural mail delivery, literacy, and competing priorities. When marking appointment times, Service staff were able to arrange group bookings for women who lived in the same household, whānau (family) group, or area. This addressed transport barriers and allowed groups to travel together and undergo screening.

A system for proactively reminding women about appointment times was implemented and a flexible approach to mammogram scheduling was adopted. The Service contacted women the day prior to their appointments to confirm their appointment time and their transportation needs. Women who did not arrive at their appointment were contacted and asked if they needed further assistance to attend that day or would they prefer a rescheduled appointment. Women who "dropped in" were enrolled and screened if they wished. Women who required repeat films for technical reasons were contacted, given an explanation of the need for repeat films and following this appointments were made. Women who did not or could not attend while the unit was based in the local area were offered appointments for screening at the next site the mobile unit would be based (Opotiki) or the fixed site in Whakatane.

The Service was also involved in the notification of abnormal results and arrangements for follow-up appointments in Rotorua (a 3–4 hour drive). The BSA provider advised the Service of abnormal breast screening results in advance of written notification of normal results to unaffected women. Service staff contacted these women, delivered the results, discussed follow-up, and ascertained if they would like transport and an appointment time at the same time as other affected women. Appointments for women who wanted this were arranged as a group, in liaison with the Rotorua breast care nurse. These processes ensured that women requiring follow up were advised of their results in advance of women with normal mammograms receiving written notification of results from BSA. It also ensured that transportation and travel time issues were proactively addressed and that mutual support from other women having follow-up was available.

During their appointments for investigation the women asked the breast surgeon to send the results and information about subsequent follow up to the Service's GP. This overcame difficulties such as the costs associated with a repeat trip to Rotorua within a short timeframe, and difficulties with timing of follow-up appointments in relation to the time required for travelling. It also ensured that women received their results in a familiar and safe environment.

Encouraging participation—A number of strategies designed to reduce barriers and foster positive participation were employed.

Members of the community were encouraged to advocate for breast screening among the community, whānau and friends. Two well known women, who had participated in breast screening in 2003 and were found to have early cancers, told their story and voiced strong support for the programme in the Service's newsletter Horirerire which is widely read in the community. Women who had previous mammograms encouraged their sisters, aunts, and friends to enrol. The driver of the van used to transport women was in the screening age group, and as a well known member of the community she encouraged and reassured women as needed.

The Service and its staff became actively involved in the promotion of breast screening and provided information to the local community in conjunction with other community events where women would be present. Hui (meetings) to specifically promote breast screening were not held as staff felt promotion in conjunction with other events would reach more women. Events where breast screening promotion was undertaken included: the kohanga reo purapura day, kaumātua days, and raranga (weaving) groups. Registration forms were taken to all community meetings allowing women to enrol at the time of the meeting. In addition, staff actively promoted breast screening at any opportunity in

the Service and the dates of the mobile unit's availability were advertised repeatedly in the Service newsletter, at all the local marae, in the shop, and in the windows of the local 'pub'.

Increased community awareness was also fostered by the involvement of the local iwi authority, Te Rūnanga o Te Whānau who actively assisted with health promotion activities. Te Rūnanga o Te Whānau also provided a van and driver to transport women to breast screening and for follow-up appointments in Rotorua. BSM provided petrol vouchers.

When women attended breast screening, the Service provided a 'cup of tea' with the opportunity for women to share and debrief with one another. In general there was a great atmosphere and a lot of laughter with women leaving and encouraging their other whānau members to attend. The Service also gave women a small gift after they had undergone breast screening (a bag of lavender made from donated products).

Group booking of appointments and travelling together was well received by women and appeared to make the process more acceptable and friendly for women involved.

Strategies used in 2007—The strategies used for the 2007 round of breast screening were similar to those used in 2005 because these strategies had improved coverage and seemed to be acceptable to women. A small number of the previously enrolled women responded to a letter sent by BSM and made appointments for themselves. One modification to the process was the prioritisation of women who had not participated in 2005. These women were identified and approached first, by staff from the clinic. Through the education activities of 2005, women's knowledge of breast screening was considered more than sufficient therefore community promotion was not undertaken in 2007.

TWAACH felt that the time and resources required for education and promotion was less intensive as, for many women, the process had been 'normalised' by their prior experience and the impact of other external social factors regarding participation were now evident. However, promotion of the arrival of the mobile screening unit was undertaken in the same manner as 2005.

The mobile unit was scheduled to visit during the Kiwi fruit picking season. Community members, who were receiving the unemployment benefit, were required to undertake casual work in kiwi fruit orchards an hour's drive from Te Kaha. This impacted upon their ability to participate in the breast screening programme causing some difficulties with organising appointments. They were also only available to attend if the weather meant that picking was cancelled for the day.

Results

Impact on participation in breast screening—In 2003, less than 45% of eligible women (aged 50–64 years) enrolled with TWAACH, underwent breast screening. Information about participation in 2005 and 2007 is contained in Table 2 and Table 3.

In 2005, 185 of 189 eligible women (97.9%) underwent breast screening. The majority (163/185; 88.1%) underwent screening in the mobile units (data not shown). The Service arranged screening at more distant sites for the remaining 22 women. Most of these women (21/22) had screening in Opotiki or Whakatane. One woman was screened in Whangarei. Participation was slightly higher among Māori women (98.7%) compared with 93.9% of non-Māori women (Table 2).

In 2007 97.6% of eligible women underwent breast screening. Participation rates were slightly higher among Māori women (98.9% for Māori compared to 91.4% for non-Māori) (Table 2).

In 2005 participation was lowest among women aged 65–69 years (93.1%). All eligible women aged 50–59 years and around 97% of women in the 45–49 and 60–64 year age groups were screened. In 2007 participation (98%) was similar to that of 2005. However participation among women aged 60–64 had dropped slightly (from 97% to 94%—representing 1 woman), and had increased slightly among women aged 65–69 years (93% to 97% - a difference of six women) (Table 3).

Table 2. Participation in breast screening by ethnicity in 2005 and 2007

Ethnicity	2005			2007		
	Number eligible	Number who had breast screening	Participation (%)	Number eligible	Number who had breast screening	Participation (%)
Māori	156	154	98.7	177	175	98.9
Non-Māori	33	31	93.9	35	32	91.4
Total	189	185	97.9	212	207	97.6

Table 3. Participation in breast screening by age group in 2005 and 2007

Age	2005			2007		
	Number eligible	Number who had breast screening	Participation (%)	Number eligible	Number who had breast screening	Participation (%)
45–49	43	42	97.7	51	50	98
50–54	47	47	100	49	48	98
55–59	37	37	100	45	45	100
60–64	33	32	97.0	33	31	94
65–69	29	27	93.1	34	33	97
Total	189	185	97.9	212	207	98

Discussion

We acknowledge that since 2003 there have been changes to BSM processes. In particular, BSM endeavours to phone women to make mammogram appointments once they have been enrolled by their primary health care provider, and women are now able to enrol over the phone. However, ethnic disparities in breast screening coverage persist.

This paper describes the improvements that can be made to breast screening participation using a variety of community and practice-based strategies. In particular the initiative demonstrated that by using appropriate strategies, very high participation rates for Māori women can be achieved. The key strategies are discussed.

Community education strategies—Community education and information strategies have been shown to improve breast screening participation. TWAACH provided education and information about breast screening and the impending mobile unit visit. These activities were delivered using the community's established methods of communication and routine community activities, rather than developing new communication approaches or arranging meetings specifically to deliver breast screening information. Increased use of existing methods of communication by General Practices and PHOs could increase participation. Similarly, already established community fora and community networks could be utilised to provide information about breast screening. Community health workers located in PHOs and health services, and well known members of the community may be used to assist with these activities. The National Screening Unit (NSU) contracts with nine independent service providers to deliver breast screening health promotion, but these workers have not been active in the region in which TWAACH provides primary care.

Improving access to breast screening—Cooperation between BreastScreen Midland and TWAACH improved the responsiveness of the system to local needs and facilitated access to breast screening. The on-going active involvement of TWAACH improved coordination for local women. TWAACH staff enrolled women and made appointments. Assistance with appointment making has been shown to improve participation.⁹ Internationally the key factors shown to increase participation include a letter of invitation, educational material, use of phone calls and direct reminders. All these strategies were used. Screening programme staff adopted flexible approaches to changes in the daily appointment schedule and supported the TWAACH's commitment to ensuring that all women were screened and no-one was turned away. These strategies demonstrate both the importance of cooperation between BSA and primary care services, and the ability to successfully do so to meet local need.

Access to services was also facilitated by providing women who lived in the same area with appointments at the same time, and by providing transport to the unit for those that required this assistance. Women requiring follow-up of abnormal results had appointments made for the same day and were given the option of travelling together. This allowed appointments to be made for times that took into account the time required to travel to the provincial centre and allowed women to provide each other with support during this time. In urban centres this function may be able to be provided by community health workers.

Recommendation by GP and other staff—All members of the TWAACH staff were actively involved in the breast screening activities. Team work including non-medical staff has been shown to be important in increasing participation in screening.

^{12,13,14} Recommendation and encouragement to participate in screening by all clinical and non-clinical TWAACH staff was an important strategy. Recommendation by GPs and other health professionals is an important influence on participation in breast screening. Failure of physicians to recommend screening has been noted as an important factor in non-participation. ^{13,14} Recommendation by trusted health professionals has been shown to increase participation in breast screening programmes.^{9,10} The use of community health workers has also been shown to increase breast screening participation.⁹ A study from the USA using “well connected” Samoan women to promote breast screening was shown to improve uptake and supports the community approach used in this initiative.

Practice system strategies—Office based strategies to improve preventive health service delivery are important tools. Identifying people who are in need of preventive care services¹² and recall and reminder systems have been shown to be effective.^{13,14} Unlike most organised screening programmes internationally, New Zealand does not have a population register from which to invite unenrolled women, but once women are screened they are routinely invited two-yearly if they are still eligible. Office based strategies employed by TWAACH service included the creation of a list of all eligible women, notification that breast screening was due, follow-up of women who had not responded to the notification, reminding women the day before their appointment, immediately contacting women who did not arrive for their mammogram, and making alternative arrangements for these women.

The staff of TWAACH were committed to 100% participation rather than registration with the programme as an end point. The strategies adopted by TWAACH were

universally applied i.e., were applied to all women who were eligible for breast screening. However, in 2007 women who had recently become eligible or had moved into the area since the last screening round were prioritised for individual contact by staff of the clinic. No new resources were required to implement these strategies with the major 'opportunity cost' being associated with the administrator's time.

Recommendation for future research—This paper is a retrospective evaluation. Future directions for research could include comprehensive prospective evaluation of initiatives to improve screening coverage and the impact of these initiatives on longer term outcomes such as breast cancer stage, at diagnosis and survival rates. On-going monitoring of screening coverage at TWAACH will provide information about the sustainability of the high coverage rate. The involvement of patients in future studies will provide useful information about the relative importance of different components of the initiative and allow assessment of patient satisfaction with the initiative.

Conclusion—This article describes the strategies used to increase breast screening participation in a rural General Practice with a high Māori population. Nationally the poor delivery of breast screening to Māori women is of concern and is one of many examples of inequalities in health care. TWAACH has shown that if appropriate strategies are used then a high proportion of Māori women will participate. The strategies used did not require new services or resources, requiring only local input, flexibility and collaboration between existing services. As a result breast screening participation improved from less than 45% to about 98% in both 2005 and 2007. The general principles underlying the strategies employed can be implemented in other General Practice and PHO settings to improve breast screening coverage, reduce ethnic inequalities in coverage and ultimately, improve breast cancer survival.

Competing interests: None known.

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