

Retrospective survey of colposcopy experience for wāhine Māori across two time periods (2016 and 2021) in Waitemata and Auckland districts, New Zealand

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ABSTRACT

AIMS: To examine wāhine Māori experiences of colposcopy services in New Zealand based on surveys conducted in 2016 and 2021.

METHODS: The surveys included a total of 201 wāhine Māori who had attended one of the three colposcopy clinics in the Waitemata and Auckland districts. Participants were retrospectively surveyed about their experience via telephone using a pre-tested questionnaire. Pre-defined responses were analysed quantitatively, and narrative comments were analysed thematically.

RESULTS: Response rates were 27.6% in 2016 and 34.2% in 2021. Prior to their appointment, most women reported receiving the information leaflet and a reminder. At the clinic visit, overall interaction with staff, comfort, listening and explanation of the procedure all scored highly, with maintenance or improvements from 2016 to 2021. Wāhine reported feeling culturally safe. Areas for improvement included content of information, access to Māori community liaison, appointment waiting time and delivery of colposcopy results.

CONCLUSIONS: The findings indicated that wāhine Māori had overall excellent experiences of colposcopy services, maintained over a five-year period with some suggested improvements to context of information and communication. This provides reassurance for wāhine Māori in the diagnostic and treatment part of the cervical screening pathway ahead of the upcoming change to HPV primary screening.

In New Zealand, about 160 women develop cervical cancer annually, and about 50 women die from it, accounting for an age standardised mortality rate of 1.6 per 100,000 population.¹ This represents a substantial decrease from the rate of 5.5 in 1990, when the routine National Cervical Screening Programme (NSCP) was introduced. Despite the sharp decline in cervical cancer mortality, persistent inequities remain, with mortality about three times higher for wāhine Māori than non-Māori.² Early detection plays a major role in reducing inequities in cervical cancer outcomes;² however, access to cervical screening is lower for wāhine Māori, linked to a range of factors, issues including discomfort, fear of cancer, cost and health service factors.^{3,4} Three-year cervical screening coverage for 25–69 years for wāhine Māori is 59% compared to 79% for European/other women.⁵

Colposcopy is the key step in early diagnosis of the disease, following detection of cervical cell

changes that are picked up in primary care via cervical screening (currently cytology) or symptomatic presentation. A colposcopy examination usually takes place in a hospital outpatient setting where the cervix is observed under magnification looking for signs of precancerous or cancerous changes. Where the colposcopy examination is abnormal, further treatment may follow in the clinic setting or later with a procedure. Colposcopy is an invasive examination and wāhine Māori are less likely to attend the colposcopy appointment.⁵ Quality of care and culturally tailored approaches, such as delivery of information through community groups, culturally friendly clinic environments and the use of interpreters, are critical in improving equitable access to screening services.^{6,7} In this service evaluation, we present the experiences of colposcopy for wāhine Māori at the Auckland and Waitemata district clinics, first surveyed in 2016 as a prioritised activity to improve the timeliness and experiences of colposcopy for Māori women

in the Māori Health Plan,⁸ with the second survey, conducted in 2021, as both district services had made improvements over the period, which provided a comparison to the 2016 survey.

Methods

Study design and participants

Two separate retrospective telephone surveys were undertaken in 2016 and 2021 from a sample population of all wāhine Māori who had attended one of the three colposcopy outpatient clinics in the Waitematā and Auckland districts. The 2016 survey was conducted between March and June 2016, surveying women who visited one of those clinics between July 2015 and January 2016. The 2021 survey was conducted in September and October 2021, surveying women who visited one of those clinics between January 2020 and September 2021. Ethnicity data were extracted from hospital outpatient clinic lists; where multiple ethnicities were identified, ethnicity was prioritised as per the Health and Disability Ethnicity Data Protocols: Māori>Pacific>Asian>Other.⁹ No clinical exclusion criteria were applied.

Survey procedure

All participants were contacted by an experienced kaimahi Māori interviewer/researcher. Working backwards from the end of the study period, attempts were made to contact all eligible women to obtain a sample of 50 women from each district. Participants were deemed “uncontactable” when they could not be contacted after at least three attempts either on a weekday, after hours or in the weekend. Consented participants were interviewed using an agreed survey script (Appendix 1), which was developed based on elements of the Waitematā Friends and Family text, with input from the Waitematā and Te Toka Tumai Auckland Women’s Health service and the Waitematā Patient Experience Team. Colposcopy experience mechanisms in other districts were also reviewed. The survey was pilot tested and refined. Responses were recorded electronically at the time of the interview using SurveyMonkey in 2016 and Buzz Channel in 2021. As a recognition of time and valuable contribution to improving services, a \$20 koha was posted to participants.

The 2021 survey protocol adhered as closely as possible to the protocol used in 2016. Interviewers used the same questionnaire, with an additional four questions relating to cultural safety included in the 2021 survey to better understand women’s experience of colposcopy (Appendix 1).

Ethics approvals

The survey was considered a service evaluation and low risk; thus, it did not meet the criteria for Health and Disability Ethics Committees review. Localities approval, however, was provided by the Waitematā District Health Board (DHB) Awhina Research and Knowledge Centre (updated RM#15144).

A Māori data sovereignty assessment was completed.¹⁰ This assessment includes a principles matrix used to identify the level of sensitivity, determined to be “Orange”, which recommends Māori governance. Māori governance for this project was provided by Te Kōtui Hauora (Iwi DHB Partnership Board at the time) and Māori leadership was provided by the Manager Māori Health Gain support and Māori staff (kaimahi Māori interviewers for both years).

Statistical analysis

Pre-defined responses were analysed quantitatively and reported as numbers and percentages. The comparisons between the two surveys were made using Fisher’s exact tests, with a p value <0.05 considered statistically significant. Participants’ comments recorded as free text were analysed thematically. The analyses were conducted using R version 4.1.2 and Microsoft Excel.

Results

In 2016, a total of 365 eligible women were contacted to obtain a sample of 101 women who completed the interview, giving a response rate of 27.6%. Among this total, 5 (1.3%) women declined and 259 (71.1%) were uncontactable. In 2021, 292 eligible women were contacted to successfully interview 100 women, giving a response rate of 34.2%. Among this total, 16 (5.5%) women declined and 176 (60.3%) were uncontactable. Of all wāhine Māori, the majority were between 21 and 40 years old (67.3% in 2016, 68.0% in 2021) (Table 1). Approximately half the women in each survey came from each of Auckland and Waitematā districts (Table 1).

Experience prior to colposcopy appointment

Most participants in both surveys received a letter and information leaflet from the hospital prior to their appointment (91% in 2021 and 89% in 2016) and indicated that it prepared them for their appointment (90% and 96%, respectively) (Table 2, Figure 1). However, a significantly lower

proportion of women (71%) in 2021 reported that the leaflet contained all the information they needed, compared to 92.2% in 2016.

Most women (90% in 2021, 86% in 2016) received at least one form of reminder about their appointment by text, phone call or letter. In 2021, only 3% of participants reported contact with a Māori and Pacific community liaison worker, while 22% liaised with a women's health community worker in 2016. All the women who used the service found it helpful.

Experience at the colposcopy clinic visit

A majority of 2021 survey participants (84%) indicated that the clinic was easy to find, although it showed a decline from 93% in 2016 (Table 3, Figure 1). It is noted that some patients from the elective surgical centre, North Shore Hospital had to attend the appointment at the Waitakere Hospital at some points during the 2021 survey period. The 2021 survey, however, showed an improvement in time to being seen in clinic—83% (versus 66% in 2016) were seen by a colposcopist within 10 minutes. Similarly, in 2021, a significantly higher proportion of participants reported excellent for staff friendliness (91% versus 77% in 2016), and

staff answering participants' questions (85% versus 74% in 2016). For the remaining questions on their experience at the clinic visit, both surveys showed similar positive responses (Table 3, Figure 1).

Participants' comments on their experience of colposcopy clinic visit

Free-text comments were collected from the participants about their overall experience of the clinic visit and areas for improvement in both surveys. Additionally, the 2021 survey included comments on the cultural aspects and receipt of information on other services (Appendix 1). Analysed thematically, three major themes were identified: interaction with staff, cultural safety, and information and communication.

Interaction with staff

A great majority of participants in both surveys commented very positively on their interaction with staff, noting that the staff were kind, friendly, put them at ease, made them feel safe and reassured them if they were nervous. The staff also made their partners, children and family members feel welcome.

Table 1: Participants' background information.

Category	2016		2021		p-value
	Number	%	Number	%	
Total	101	100.0	100	100.0	
Clinic attended					0.871
Elective surgical centre, North Shore Hospital	24	23.8	21	21.0	
Waitakere Hospital	33	32.7	32	32.0	
Greenlane Clinical Centre	44	43.6	47	47.0	
Age in years					0.829
21–30	36	35.6	42	42.0	
31–40	32	31.7	26	26.0	
41–50	13	12.9	15	15.0	
51–60	11	10.9	10	10.0	
60+	9	8.9	7	7.0	

Table 2: Participants' experience prior to colposcopy appointment.

		2016			2021			
Responses		Total	Number	%	Total	Number	%	p-value
Receipt of letter and information leaflet from the hospital		101			100			0.825
	Yes		90	89.1		91	91.0	
	No		6	5.9		6	6.0	
	Don't know		5	5.0		3	3.0	
(i) Whether the information was useful		90			91			0.078
	Yes		86	95.6		82	90.1	
	No		2	2.2		3	3.3	
	Don't know		2	2.2		6	6.6	
(ii) Content of information		90			91			0.002
	Too much		0	0.0		3	3.3	
	Right amount		83	92.2		65	71.4	
	Inadequate		3	3.3		7	7.7	
	Other		4	4.4		16	17.6	
Receipt of reminder of clinic visit		101			100			0.192
	Yes		87	86.1		90	90.0	
	No		8	7.9		2	2.0	
	Don't know		6	5.9		8	8.0	
Contact with Māori and Pacific Community Liaison workers		101			100			<0.001
	Yes		22	21.8		3	3.0	
	No		64	63.4		91	91.0	
	Don't know		15	14.9		6	6.0	
(i) Whether the contact was useful		22			3			1.000
	Yes		22	100.0		3	100.0	
	No		0	0.0		0	0.0	

Figure 1: Summary of positive responses, comparing the 2016 and 2021 surveys.

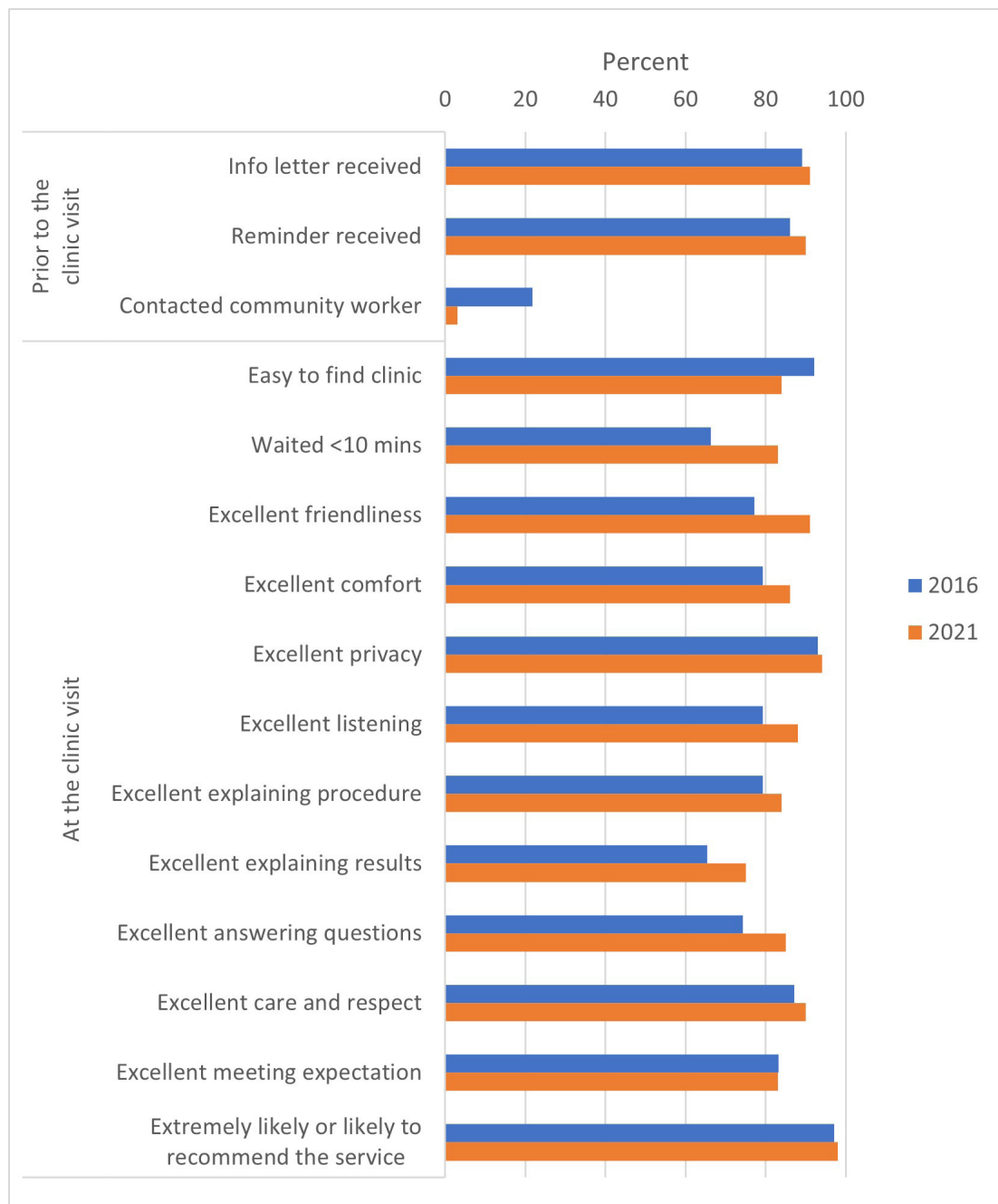


Table 3: Participants' experience during the colposcopy clinic visit.

		2016		2021		
	Responses	Number	%	Number	%	p-value
Total		101	100.0	100	100.0	
Whether the clinic was easy to find						0.049
	Yes	93	92.1	84	84.0	
	No	8	7.9	11	11.0	
	Don't know	0	0.0	5	5.0	
Waiting time						0.000
	<10 mins	67	66.3	83	83.0	
	10–60 mins	34	33.7	12	12.0	
	>60 mins	0	0.0	3	3.0	
	Don't remember	0	0.0	2	2.0	
Staff friendliness						0.014
	Excellent	78	77.2	91	91.0	
	Good/fair	22	21.8	9	9.0	
	Poor	1	1.0	0	0.0	
Feeling comfortable						0.443
	Excellent	80	79.2	86	86.0	
	Good/fair	20	19.8	13	13.0	
	Poor	1	1.0	1	1.0	
Privacy to get dressed and undressed						0.260
	Excellent	94	93.1	94	94.0	
	Good/fair	7	6.9	6	6.0	
Staff listen						0.163
	Excellent	80	79.2	88	88.0	
	Good/fair	20	19.8	11	11.0	
	Poor	1	1.0	1	1.0	
Staff explain the procedure						0.458
	Excellent	80	79.2	84	84.0	
	Good/fair	18	17.8	15	15.0	

Table 3 (continued): Participants' experience during the colposcopy clinic visit.

	Poor	3	3.0	1	1.0	
Staff explain the results						0.416
	Excellent	66	65.3	75	75.0	
	Good/fair	24	23.8	20	20.0	
	Poor/don't know	11	10.9	5	5.0	
Staff answer participants' questions						0.025
	Excellent	75	74.3	85	85.0	
	Good/fair	24	23.8	10	10.0	
	Don't know	2	2.0	5	5.0	
Staff show care and respect						0.695
	Excellent	88	87.1	90	90.0	
	Good/fair	11	10.9	10	10.0	
	Poor	2	2.0	0	0.0	
Staff meet participants' expectations						0.728
	Excellent	84	83.2	83	83.0	
	Good/fair	15	14.9	14	14.0	
	Poor/don't know	2	2.0	3	3.0	
Likeliness to recommend the service to others						0.059
	Extremely likely or likely	98	97.0	98	98.0	
	Neither likely nor unlikely	2	2.0	2	2.0	
	Unlikely	1	1.0	0	0.0	

Note: Categories with "0" only are omitted from the table.

“The lady who did my procedure felt like whānau, it felt like she cared about me. She talked to me about if I was planning on having children, and it felt like she cared about my plans.” (26–30 years, 2021 survey)

Cultural safety

The participants’ experience from a cultural aspect was explored specifically in the 2021 survey, and almost all women positively commented that the colposcopy service was culturally competent. Many women described that they were, as wāhine Māori, treated well, while a few others mentioned that they didn’t think this was relevant to their care.

“Very well, they responded well in general, regardless of if I am Māori or not.” (41–45 years, 2021 survey)

“Very good. The nurse was very accommodating and really took the time to get to know me and answered all my burning questions in a mana-enhancing way.” (31–35 years, 2021 survey)

Several women noted that they were not aware of a Māori community liaison service or role and would have liked that service. Some women preferred having more Māori staff at the clinic and having more cultural content in the letter. Five women suggested an option with a female health professional. The participants felt encouraged to attend the appointment mostly by their family and friends, followed by their GPs or nurses; a few of them were self-encouraged, and three of them did not tell anyone about the appointment.

Information and communication

Although most participants were satisfied with the information and communication they received, the 2021 survey indicated a variety of areas for improvement. Seven women did their own research to prepare for the appointment. One woman found it difficult to get in contact with the clinic. Three women suggested better explanation of the procedure prior to the appointment. Some women preferred electronic communication to letters; others would rather receive normal results over the phone than in-person. Several women sought further resources to understand their results, such as the internet or discussion with GPs. Two women suggested education for school-age girls.

“Didn’t get results and chased them up after the 4 weeks, they said, ‘Yep, we’ll call you’ and didn’t ... [the result] went to her GP and not her so still had to chase it from there.” (21–25 years, 2021 survey)

As the 2021 survey further explored receipt of information on other health and social services, about one third of participants received such information and benefited from various services such as quit smoking service, HPV vaccination, mammogram, gynaecologist and post-colposcopy support.

“Quit smoking—have since quit.” (31–35 years, 2021 survey)

Other comments

Less frequently, the participants commented about the procedure being quick and easy, and expressed issues with long wait lists for appointments and getting to the clinic. Similar to the 2016 survey, in the 2021 survey four women shared their stressful experience due to the long time to get an appointment.

“Had to wait six months for an appointment, know I wasn’t that serious priority but still had to wait and that was stressful.” (41–45 years, 2021 survey)

While most participants found it easy to get to the clinic, a few of them in both surveys suggested improved signage, better directions in the information pack and improved access to parking. Four participants in the 2021 survey suggested that free parking would be helpful.

“It took me ages to find the right parking spot and it was a hassle to find the right building but once I got in there I kind of knew where to go ... From memory the letter didn’t explain which entrance to go in.” (21–25 years, 2021 survey)

Discussion

In this service evaluation we reported the findings of two separate surveys in 2016 and 2021, exploring wāhine Māori experiences of their colposcopy clinic visit. We also examined the progress in delivering the service over a five-year period by comparing the 2021 results to the 2016 results. We found that the experience of the

participants in both surveys were overall very positive, with many results either being maintained or improved. Given the number of studies that have drawn attention to poor patient experience for whānau Māori in a range of diagnostic and treatment settings,^{11,12} both the positive experiences seen here and the consistency of those positive results are encouraging, and reflect a wāhine and whānau centred approach. Participants specifically acknowledged excellent interactions with staff members, reporting their personalised care and friendliness more favourably in the 2021 survey. The findings also reflected that wāhine overall felt culturally safe.¹³ The colposcopy clinics had significantly improved in time waiting in clinic—17% more participants were seen by a colposcopist within 10 minutes in 2021, which may result from spacing out the appointments to accommodate for social distancing in waiting rooms as a COVID-19 prevention and, hence, reduced waiting times.

In addition to the success, the surveys identified the areas for improvement, notably around information and communication. In 2021, 29% of women suggested that the content in the pre-appointment information leaflet could be improved. Providing efficient information is essential for women to prepare for their appointment, and it may help reduce “Did Not Attend” (DNA) rates.^{14,15} The colposcopy service standards in New Zealand¹⁶ advise that women should be given information on available Māori support services. However, only few women were aware of these services in 2021. We note that these services may have been substantially impacted by COVID-19. Since the women who received liaison services found them helpful, these services could be promoted to ensure wāhine Māori are fully supported. Having to have a colposcopy exam is often stressful for women, and various supports, including from whānau and friends, enabled them to attend the appointment, which was also noted in earlier research.¹⁷

According to the 2021 survey some women reported consulting other resources to understand their results. A previous study¹⁷ also reported similar issues with delivery of results, which call for a strategy to effectively communicate the results to the women. A few women commented on the waiting time to get to a colposcopy appointment, and anxiety relating to this. The timeliness of colposcopy assessment in the national report documented widely varied timeframes depending on the cytology grading, as well as local women’s

health service factors and the district of residence.⁵ It has been reported that wāhine Māori have longer waiting times for colposcopy overall, with greater DNAs.⁵

Colposcopy is the key diagnostic and treatment intervention in the cervical screening pathway. Evidence shows that health outcomes are comparable among the patients who are screen-detected at an early stage.^{18,19} However, there are known ethnic inequities in cancer pathways more broadly,^{11,20–22} and longstanding inequities for wāhine Māori in cervical screening participation and outcomes.^{5,23–25} HPV self-testing has significant potential to address these inequities;^{25–28} however, support to ensure access to cytology and colposcopy follow-up will be essential to achieve equity, particularly with the anticipated increase in colposcopy referrals.²⁹ This evaluation provides important assurance, ahead of the imminent implementation of primary HPV screening (including HPV self-testing), of a culturally safe and positive experience for wāhine Māori at colposcopy.

The surveys provided robust data at two large urban clinics over two time points, and the age distribution of the participants was reflective of overall wāhine having a colposcopic examination;³⁰ however, there were some limitations. The women were interviewed retrospectively, at several months post-appointment for some of them, which may result in recall bias. Only wāhine Māori who attended colposcopy appointments were recruited into the surveys; therefore, comparison with experience of other ethnic groups was not possible. The application of the survey findings may be limited given the low response rate, which, however, showed similar to that of another survey on HPV self-testing.²⁵ It was also noted that those who had poor experience may have declined to participate. Surveys of women who did not attend the colposcopy clinics in the future may complement our findings.

Conclusion

With HPV primary screening implementation imminent in Aotearoa, it is timely to consider women’s current experiences of colposcopy services to contribute to improved health outcomes. Both the 2016 and 2021 surveys indicated that wāhine Māori had overall excellent experiences of colposcopy services at the Waitematā and Auckland district clinics. The surveys suggested some improvements to context of information and communication. This provides important

evidence of best practice services and provides reassurance for wāhine Māori seeking self-testing in the new HPV primary screening programme.

A repeated survey after the primary HPV programme change may be useful as a monitoring tool.

COMPETING INTERESTS

The authors declare that there are no conflicts of interest.

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REFERENCES

1. Te Whatu Ora – Health New Zealand. Historical cancer data, Cancer: Historical summary 1948–2020 [Internet]. Wellington: Te Whatu Ora – Health New Zealand; 2023 [cited 2023 Apr 1]. Available from: <https://www.tewhatauora.govt.nz/our-health-system/data-and-statistics/historical-cancer/#cancer-historical-summary-19482020>.
2. McLeod M, Harris R, Purdie G, et al. Improving survival disparities in cervical cancer between Māori and non-Māori women in New Zealand: a national retrospective cohort study. *Aust N Z J Public Health*. 2010 Apr;34(2):193-9. doi: 10.1111/j.1753-6405.2010.00506.x.
3. Scott-Melton F. Cervical screening communications for young Māori, Pacific and Asian women [Internet]. Wellington: Allen + Clarke; 2019 [cited 2023 Apr 1]. Available from: https://www.nsu.govt.nz/system/files/resources/cervical_screening_communication_research_key_findings.pdf.
4. Best Practice Advocacy Centre New Zealand (bpac NZ). Cervical smears – achieving equity. *Best Pract J* [Internet]. 2009 Sep [cited 2023 Apr 1];23. Available from: https://bpac.org.nz/bpj/2009/september/docs/bpj23_csmears_pages46-55.pdf.
5. Smith M, Sherrah M, Rumlee L, Canfell K. National Cervical Screening Programme Monitoring Report Number 52 [Internet]. Wellington: National Screening Unit; 2021 [cited 2023 Apr 1]. Available from: https://www.nsu.govt.nz/system/files/page/national_cervical_screening_programme_final_monitoringreport_number_52.pdf.
6. McPherson GS, Fairbairn-Dunlop P, Payne D. Overcoming Barriers to Cervical Screening Among Pacific Women: A Narrative Review. *Health Equity*. 2019 Feb 14;3(1):22-29. doi: 10.1089/hecq.2018.0076.
7. Reid P, Robson B. Understanding health inequities [Internet]. Dunedin: University of Otago; 2007 [cited 2023 Apr 1]. Available from: <https://www.otago.ac.nz/wellington/departments/publichealth/research/erupomare/research/otago019494.html>.
8. Auckland District Health Board. 2016/17 Māori Health Plan Auckland District Health Board [Internet]. Auckland: Auckland District Health Board; 2017 [cited 2023 Apr 1]. Available from: <https://www.adhb.health.nz/assets/Documents/About-Us/Planning-documents/Maori-Health-Plan-ADHB-16-17-Final.pdf>.
9. Manatū Hauora – Ministry of Health. HISO 10001:2017 Ethnicity Data Protocols [Internet]. Wellington: Ministry of Health; 2017 [cited 2023 Apr 1]. Available from: [https://www.moh.govt.nz/notebook/nbbooks/sf/0/569DDB6A56F7E726CC2581FC00665BEB/\\$file/hiso-10001-2017-ethnicity-data-protocols.pdf](https://www.moh.govt.nz/notebook/nbbooks/sf/0/569DDB6A56F7E726CC2581FC00665BEB/$file/hiso-10001-2017-ethnicity-data-protocols.pdf).
10. Te Mana Raraunga. Māori Data Sovereignty Network [Internet]. [place unknown]: Te Mana Raraunga; c2023 [cited 16 Mar 2023]. Available from: <https://www.temanararaunga.maori.nz/>.
11. Te Aho o Te Kahu Cancer Control Agency. He Pūrongo Mate Pukupuku o Aotearoa 2020, The

- State of Cancer in New Zealand 2020 [Internet]. Wellington: Te Aho o Te Kahu Cancer Control Agency; 2021 [cited 2023 Apr 1]. Available from: [https://teaho.govt.nz/static/reports/state-of-cancer-in-new-zealand-2020%20\(revised%20March%202021\).pdf](https://teaho.govt.nz/static/reports/state-of-cancer-in-new-zealand-2020%20(revised%20March%202021).pdf).
12. Gurney J, Stanley J, McLeod M, et al. Disparities in Cancer-Specific Survival Between Māori and Non-Māori New Zealanders, 2007-2016. *JCO Glob Oncol*. 2020 Jun;6(6):766-774. doi: 10.1200/GO.20.00028.
 13. Curtis E, Jones R, Tipene-Leach D, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. *Int J Equity Health*. 2019 Nov 14;18(1):174. doi: 10.1186/s12939-019-1082-3.
 14. Liang LA, Zeissig SR, Schauburger G, et al. Colposcopy non-attendance following an abnormal cervical cancer screening result: a prospective population-based cohort study. *BMC Women's Health*. 2022 Dec 1;22(1).
 15. Douglas E, Wardle J, Massat NJ, Waller J. Colposcopy attendance and deprivation: A retrospective analysis of 27,193 women in the NHS Cervical Screening Programme. *Br J Cancer*. 2015 Jun 30;113(1):119-22. doi: 10.1038/bjc.2015.176.
 16. Manatū Hauora – Ministry of Health. National Cervical Screening Programme Policies and Standards, Section 6: Providing a Colposcopy Service [Internet]. Wellington: Manatū Hauora – Ministry of Health; 2013 [cited 2023 Apr 1]. Available from: https://www.nsu.govt.nz/system/files/page/ncsp_policies_and_standards_section_6_providing_a_colposcopy_service_june_2014_0.pdf.
 17. Adcock A, Stevenson K, Cram F, et al. He Tapu Te Whare Tangata (sacred house of humanity): Under-screened Māori women talk about HPV self-testing cervical screening clinical pathways. *Int J Gynaecol Obstet*. 2021 Nov;155(2):275-281. doi: 10.1002/ijgo.13873.
 18. Lawrenson R, Lao C, Jacobson G, et al. Outcomes in different ethnic groups of New Zealand patients with screen-detected vs. non-screen-detected breast cancer. *J Med Screen*. 2019 Dec;26(4):197-203. doi: 10.1177/0969141319844801.
 19. Tin Tin S, Elwood JM, Brown C, et al. Ethnic disparities in breast cancer survival in New Zealand: which factors contribute? *BMC Cancer*. 2018 Jan 8;18(1):58. doi: 10.1186/s12885-017-3797-0.
 20. Kereama-Royal I, Jones S, Wijohn EL, et al. Resisting ethnic inequities in advanced breast cancer: a call to action. *N Z Med J*. 2019 Dec 13;132(1507):83-89.
 21. Gurney J, Campbell S, Jackson C, Sarfati D. Equity by 2030: achieving equity in survival for Māori cancer patients. *N Z Med J*. 2019 Nov 8;132(1506):66-76.
 22. Hill S, Sarfati D, Blakely T, et al. Survival disparities in Indigenous and non-Indigenous New Zealanders with colon cancer: the role of patient comorbidity, treatment and health service factors. *J Epidemiol Community Health*. 2010 Feb;64(2):117-23. doi: 10.1136/jech.2008.083816.
 23. Whop LJ, Smith MA, Butler TL, et al. Achieving cervical cancer elimination among Indigenous women. *Prev Med*. 2021 Mar;144:106314. doi: 10.1016/j.ypmed.2020.106314.
 24. Sykes P, Williman J, Innes C, Hider P. Review of Cervical Cancer Occurrences in relation to Screening History in New Zealand for the years 2013–2017 [Internet]. Dunedin: University of Otago; 2019 [cited 2023 Apr 1]. Available from: <https://www.nsu.govt.nz/system/files/resources/cancer-case-review-2013-2017-final-report-29-august-2019.pdf>.
 25. Bartholomew K, Grant J, Maxwell A, et al. Feasibility and acceptability of telehealth and contactless delivery of human papillomavirus (HPV) self-testing for cervical screening with Māori and Pacific women in a COVID-19 outbreak in Aotearoa New Zealand. *N Z Med J*. 2022 Nov 11;135(1565):83-94.
 26. Bromhead C, Wihongi H, Sherman SM, et al. Human Papillomavirus (HPV) Self-Sampling among Never-and Under-Screened Indigenous Māori, Pacific and Asian Women in Aotearoa New Zealand: A Feasibility Study. *Int J Environ Res Public Health*. 2021 Sep 24;18(19):10050. doi: 10.3390/ijerph181910050.
 27. Brewer N, Bartholomew K, Grant J, et al. Acceptability of human papillomavirus (HPV) self-sampling among never- and under-screened Indigenous and other minority women: a randomised three-arm community trial in Aotearoa New Zealand. *Lancet Reg Health West Pac*. 2021 Sep 7;16:100265. doi: 10.1016/j.lanwpc.2021.100265.
 28. Bartholomew K, Lawton B, Sherman SM, et al. Recommendations for implementing HPV self-testing in Aotearoa. *N Z Med J*. 2021 May 21;134(1535):11-16.
 29. Smith M, Hammond I, Saville M. Lessons from the renewal of the National Cervical Screening Program in Australia. *Public Health Res Pract*. 2019 Jul 31;29(2):2921914. doi: 10.17061/phrp2921914.
 30. Te Whatu Ora – Health New Zealand. National Women's Health Annual Clinical Report 2021. Auckland: Auckland District Health Board; 2021 [cited 2023 Apr 1]. Available from: <https://nationalwomenshealth.adhb.govt.nz/assets/Womens-health/Documents/ACR/ACR-2021-Book.pdf>.

Appendix 1: Auckland and Waitematā DHB Colposcopy Survey 2021

No.	Area/ heading	Question	Possible responses
1	Location	What clinic did you attend?	<ul style="list-style-type: none"> • Elective Surgical Centre - North Shore Hospital • Waitakere Hospital • Greenlane Clinical Centre
2	Preparation	Did you get a letter & leaflet from the hospital telling you your GP, nurse or smear taker had referred you for the procedure?	<ul style="list-style-type: none"> • Yes • No • Don't know
3		If yes: Did the information prepare you for your appointment?	<ul style="list-style-type: none"> • Yes • No • Don't know
4		If any yes/no/don't know Can you tell us about the information in the letter & leaflet?	<ul style="list-style-type: none"> • Too much information • It had all of the information I needed • I wanted more information • I did not understand the information • Other, please comment—free text
5		Did you get another reminder of your clinic visit?	<ul style="list-style-type: none"> • Yes, text • Yes, phone • Yes, another letter • No • Don't know
6		Did you talk to our Māori and Pacific Community Liaison workers before or after your appointment?	<ul style="list-style-type: none"> • Yes • No • Don't know
7		If yes, was this helpful?	<ul style="list-style-type: none"> • Yes • No • Don't know • Comment—free text

Appendix 1 (continued): Auckland and Waitematā DHB Colposcopy Survey 2021.

8	At the clinic visit	Was the clinic easy to find?	<ul style="list-style-type: none"> • Yes • No • Don't know
9		If no : please tell us how we could improve this for you and your family	Free text
10		Did we see you on time, how long did you have to wait?	<ul style="list-style-type: none"> • Excellent; no wait • Good; 5–10 mins • Fair; 10–30 mins • Poor; 30–60 mins • Very poor; >60 mins • Don't know; can't remember
11		Were we welcoming and friendly?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
12		Did we make you feel comfortable?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
13		Did we give you privacy to get dressed and undressed?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
14		Did we listen?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know

Appendix 1 (continued): Auckland and Waitematā DHB Colposcopy Survey 2021.

15		Did we explain the procedure in a way that you understood?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
16		Did we explain the results in a way that you could understand? (Follow-up open question below)	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
17*		Did you feel that we took a personal approach when we explained your results?	Free text
18		Did we answer any questions you had?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
19		Did we show care and respect?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
20		Did we meet your expectations?	<ul style="list-style-type: none"> • Excellent • Good • Fair • Poor • Don't know
21*		Was there anyone in particular who encouraged you to attend this appointment? Partner, doctor, nurse, family, friend? <i>If no—had you told anyone that you were going along to this appointment?</i> <i>If no—was there a reason you didn't tell anyone?</i>	Free text

Appendix 1 (continued): Auckland and Waitematā DHB Colposcopy Survey 2021.

22	Overall experience	How likely are you to recommend our service to friends and family who might need a similar clinic?	<ul style="list-style-type: none"> • Extremely likely • Likely • Neither likely nor unlikely • Unlikely • Extremely unlikely
23		Please tell us the main reason for that score?	Free text
24*		<p><i>Did the colposcopy service, or people who worked in it, help you to access (or encourage you to access) other health or social services?</i></p> <p><i>If yes—what were these and how important was this to you?</i></p> <p><i>(Transport; Quit Smoking; HPV Vaccination; Cervical Screening Providers; Breast Screening—do not routinely promote breast screening in our services)</i></p>	Free text
25*		<p><i>How satisfied are you that the service responded to your needs as a Māori woman accessing healthcare?</i></p> <p><i>(New initiative at Waitematā offers Māori women the choice to have a female colposcopist)</i></p>	Free text
26		What is one thing we could do to improve the service?	Free text
27		Any other comments?	Free text
28	Admin	Age	<ul style="list-style-type: none"> • <20 • 21–25 • 26–30 • 31–35 • 36–40 • 41–50 • 51–55 • 56–60 • 60+
29		Today's date	<ul style="list-style-type: none"> • Date
30		Date of referral	<ul style="list-style-type: none"> • Date

Appendix 1 (continued): Auckland and Waitematā DHB Colposcopy Survey 2021.

31		<i>Date of referral assessment</i>	• <i>Date</i>
32	<i>Admin—from clinic record</i>	<i>Date of clinic visit</i>	• <i>Date</i>

* Additional questions to the 2016 survey.