

Bowel cancer screening age range extension for Māori: what is all the fuss about?

Melissa McLeod, Ricci Harris, Sarah-Jane Paine, Sue Crengle, Donna Cormack, Nina Scott, Bridget Robson

ABSTRACT

The current New Zealand Bowel Screening Programme (BSP) is inequitable. At present, just over half of bowel cancers in Māori present before the age of 60 years (58% in females and 52% in males), whereas just under a third of bowel cancers in non-Māori are diagnosed before the same age (27% in females and 29% in males). The argument for extending the bowel screening age range down to 50 years for Māori is extremely simple—in comparison to non-Māori, a greater percentage of bowel cancers in Māori occur before the age of 60 years (when screening starts). Commencing the BSP at 50 years of age for Māori with high coverage will help fix this inequity. In this paper we review the current epidemiology of colorectal cancer with respect to the age range extension for Māori.

Bowel cancer screening has been shown to be effective at preventing bowel cancer and improving survival from bowel cancers by diagnosing them at an earlier stage.^{1,2} In New Zealand, bowel cancer screening modelling studies have shown that screening is likely to improve health for Māori and non-Māori and be cost-effective.^{3,4} For these reasons, in 2017 New Zealand began a staged rollout of bowel cancer screening, with all district health boards (DHBs) expected to be involved by late 2021 (depending on the impact of the COVID-19 pandemic). At the time of writing, bowel cancer screening had been implemented in 13 of 21 DHBs.

There are some important inequities in bowel cancer survival and treatment for Māori compared to non-Māori,^{5,6} and problems with the New Zealand bowel cancer screening programme (known as the Bowel Screening Programme (BSP)) with respect to health equity and health justice for Māori. Improving screening coverage for Māori and an adjustment to the eligible age range for Māori and Pacific peoples are two of a number of strategies proposed to address what is currently a discriminatory programme.

In this viewpoint, we review the current epidemiology of colorectal cancer with respect to an extension of the eligible

age range for Māori, in the hope that we can help to demystify the numbers and encourage a broader, informed discussion on this important issue. We take a kaupapa Māori epidemiological approach, where we understand epidemiology as one of the tools that can be used to ensure the Government meets their responsibilities under te Tiriti o Waitangi.⁷

The current BSP invites New Zealanders aged between 60 and 74 years to participate in screening every two years. This differs from the bowel screening pilot (undertaken in Waitematā DHB from 2012–2018) that invited those aged 50–74 years and is a narrower age range than that offered safely (an acceptable balance of benefits/harms) in a number of other countries.⁸ This includes countries with a lower incidence of bowel cancer in the 50–59-years-old group, compared to Māori in the same age range.⁹ The narrowing of the age range of the programme compared to the pilot was largely due to funding and colonoscopy capacity in New Zealand. There are long-standing and ongoing calls for an extension of the BSP's eligible age range for Māori and Pacific peoples, as a mechanism to address the current inequities in the programme. However, in 2020 Te Aho o Te Kahu (Cancer Control Agency) and the Ministry of Health

advised the Minister of Health to delay any decision on extending the age range until after the programme has been rolled-out in full.¹⁰ Many Māori and non-Māori health leaders and providers were unhappy with the decision to continue to rollout a programme that is knowingly inequitable and discriminatory, and they are frustrated by the lack of timely action to address inequities in the BSP.^{11,12}

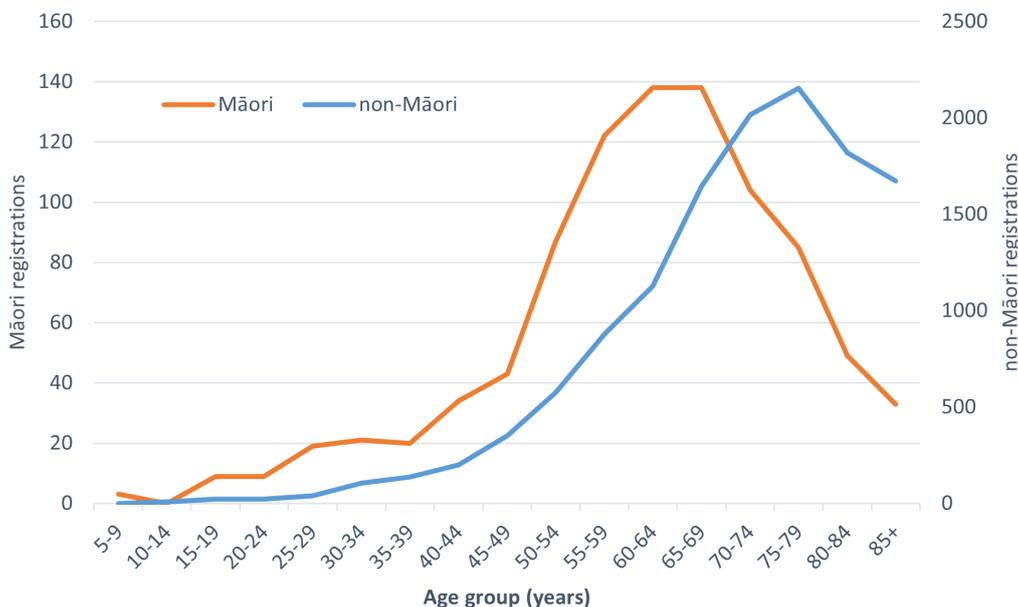
The argument for extending the age range down to 50 years for Māori is extremely simple—in comparison to non-Māori, a greater percentage of bowel cancers in Māori occur before the age of 60 (when screening starts). Commencing the BSP at 50 years will fix this inequity.

Māori and non-Māori have a similar chance of getting bowel cancer at any given age, but because Māori are a younger population than non-Māori, more of our bowel cancers occur before the current screening age. There has been some confusion about what the bowel cancer numbers show. This confusion partly stems from the different ways that the same data can be presented and interpreted. To demonstrate this point, we present bowel cancer data in three different ways. We begin with the number of new bowel cancers diagnosed by age for Māori and non-Māori between 2013 and

2017 (Figure 1). This figure excludes cancers detected in Waitematā DHB's screening pilot, so that we can examine the age distribution of cancer diagnosed outside of the screening pathway. In Figure 1, the greatest number of cancers are found at the top of the curve, which for Māori is around the age of 60–70 years and for non-Māori a bit later, around 70–80 years. Because screening aims to detect cancers earlier than they would normally be diagnosed and before symptoms develop, the ideal age range for screening would be before the number of bowel cancers peak. Therefore, from the simple count data presented in Figure 1, we could conclude that the start of current screening age range (60 years) might be appropriate for non-Māori but slightly too late for Māori.

Another way of looking at the number of bowel cancers is to look at the cumulative count of bowel cancers as age increases (Figure 2). Presenting the data in this way allows you to see how many Māori bowel cancers (as a percentage of all cancers diagnosed in Māori) are diagnosed within and outside of the current age range for screening. This is the graph that most clearly demonstrates the reason for the current debate about the age range. In this figure we can see that 58% of bowel cancers in Māori females and 52% in Māori males present

Figure 1: Number of colorectal cancer registrations by age and ethnic grouping, 2013–2017 (excluding Waitematā DHB). Data sourced from National Screening Unit, Ministry of Health 2020. Categories are presented as provided in the data.

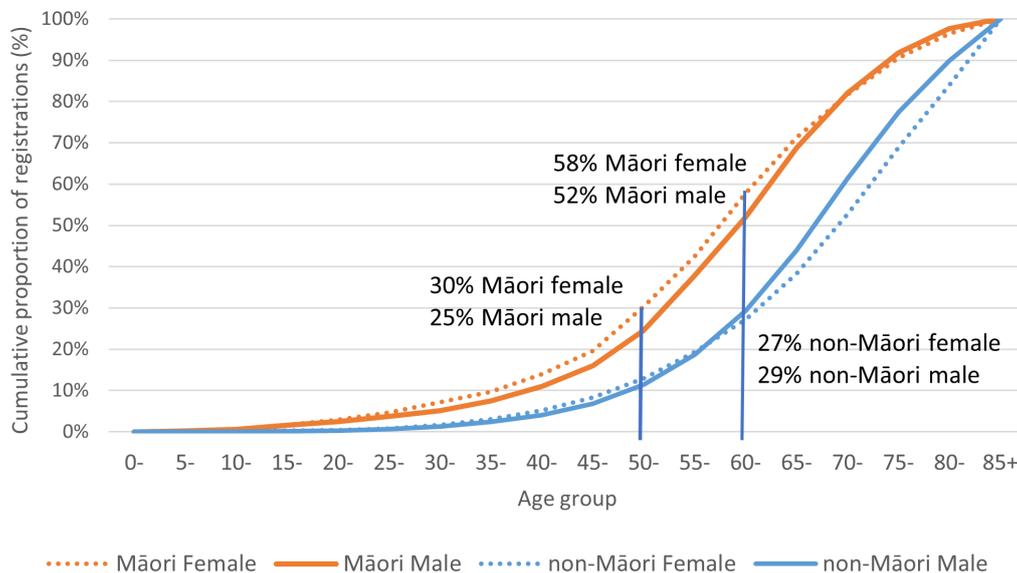


before the age of 60 years, whereas just under a third of bowel cancers in non-Māori are diagnosed before the same age (27% in females and 29% in males). The advice to start screening Māori at 50 years of age (while retaining the current age range for non-Māori) is largely based on this graph, because if Māori were screened from age 50, a similar proportion of cancers (30% in Māori females and 25% in Māori males) would occur in age groups younger than those eligible to participate in bowel screening for both Māori and non-Māori. The main reason for a greater proportion of bowel cancers occurring at younger ages for Māori is because Māori have a younger population age structure. Figure 3 shows the percentage of the Māori and non-Māori populations in each age group, and also the cumulative percentage with increasing age from the 2018 population census. It shows that 50% of the Māori population are younger than 25 years of age, whereas 50% of the non-Māori population are older than 40 years of age.

A limitation of Figure 1 (number of cancers by age) and Figure 2 (cumulative percentage of cancers) is that neither of these graphs take into account how many Māori and non-Māori there are in each age group in the population, which is accounted for in the third example, the incidence rates of disease by age group (Figure 4). The

incidence rates take the number of cancers diagnosed in each age group (as shown in Figure 1) and divide these numbers by the size of the population in each age group. In Figure 4 we can see that in 2017 the rates of bowel cancer were similar for Māori and non-Māori in each age group, and the highest rates occur at age 60–74 years in both Māori and non-Māori, males and females. We are also able to see how the incidence rates have changed over time. Up until 2017, Māori had lower rates of bowel cancer in the presented age groups. However, because non-Māori rates have dropped over time, in 2017 the rates of bowel cancer in Māori and non-Māori became similar. A recent report, *The State of Cancer in New Zealand 2020*, had similar findings, showing that the age-standardised Māori bowel cancer rates for all age groups combined have been consistently increasing since 1996, while non-Māori bowel cancer rates have been consistently decreasing over the same time period.¹³ If these time trends continue, it is very likely that in the next few years we will face a new inequity in health for Māori: a higher incidence of bowel cancer. The incidence rates provide important information about which population age groups are at the greatest risk of bowel cancer. These rates imply that the age group most at risk for both Māori and

Figure 2: Bowel cancer cumulative registrations (%) by age group, sex and ethnic grouping, 2011–2020. Data sourced from National Screening Unit, Ministry of Health 2020. Categories are presented as provided in the data.



non-Māori is 60–74 years. This suggests that the current programme appropriately targets the age group with the highest current risk of bowel cancers. However, in this data the majority of bowel cancers have been diagnosed as a result of people presenting with symptoms, and therefore, in order for the screening programme to identify bowel cancers before symptoms develop, a younger age of initiation could be considered for both Māori and non-Māori.

Discussion and conclusion

The justification for correcting the bowel cancer screening age range is simple. Māori have a higher proportion of bowel cancers being missed because the current age range does not account for Māori being a younger population. Fortunately, the solution is also very simple: an adjustment to the age range for bowel cancer screening. The most commonly discussed option is to start the age range for Māori at 50 years. However, in light of the current colonoscopy capacity issues and COVID-19, an alternative solution to work within existing resources is to instead narrow the age range of the bowel screening programme for non-Māori, or some combination of both.

The inequities in the eligible age range for bowel cancer screening should be

addressed in the same way as other quality-improvement issues. At a minimum this requires an immediate commitment to an age range extension for Māori (or a narrowing for non-Māori) along with a work plan to begin preparing and testing bowel screening systems for such a change. This will include examination of system capabilities for accurately identifying and inviting Māori participants and piloting in a small number of willing DHBs with existing colonoscopy capacity (a number of DHBs have already indicated their interest in and capacity for extending the age range for Māori). In addition, actions to improve bowel screening coverage for Māori need to be rapidly implemented. Historical trends in bowel cancer incidence, alongside the currently inequitable bowel screening programme (screening coverage and cancers missed), mean that it is likely that within the next five years Māori will face a new inequity in cancer—that is, a higher bowel cancer incidence than non-Māori—and a worsening of the existing inequities in bowel cancer mortality, which the Ministry of Health and Te Aho o Te Kahu will have directly contributed to through their lack of timely action on this issue. If they fail to respond with urgency, the Ministry of Health and Te Aho o Te Kahu’s stated commitments to health equity and te Tiriti o Waitangi will be called into serious doubt.

Figure 3: Percentage of Māori and non-Māori populations by age group from 2018 census data. Data sourced from National Screening Unit, Ministry of Health 2020. Categories are presented as provided in the data.

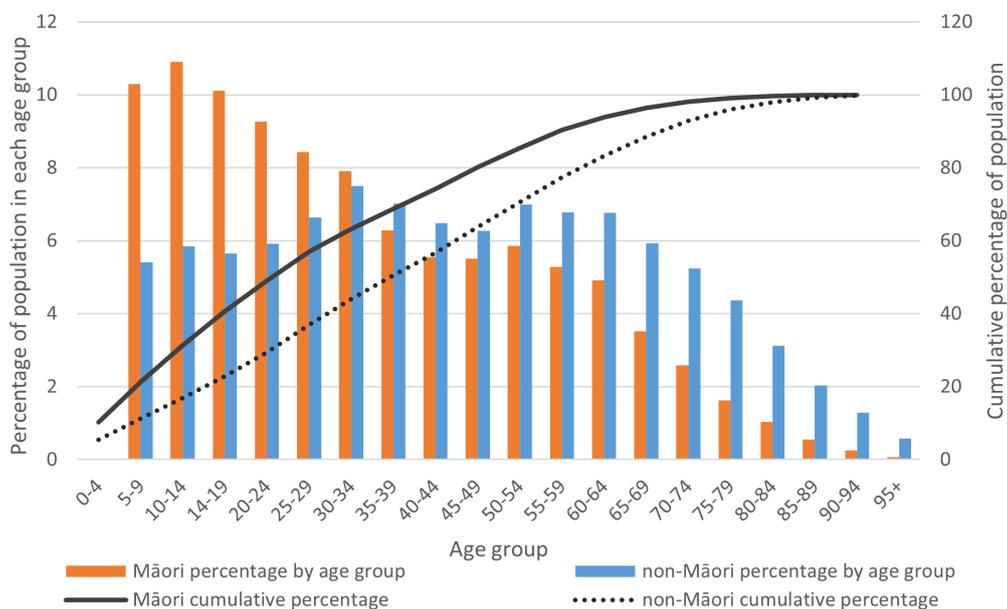
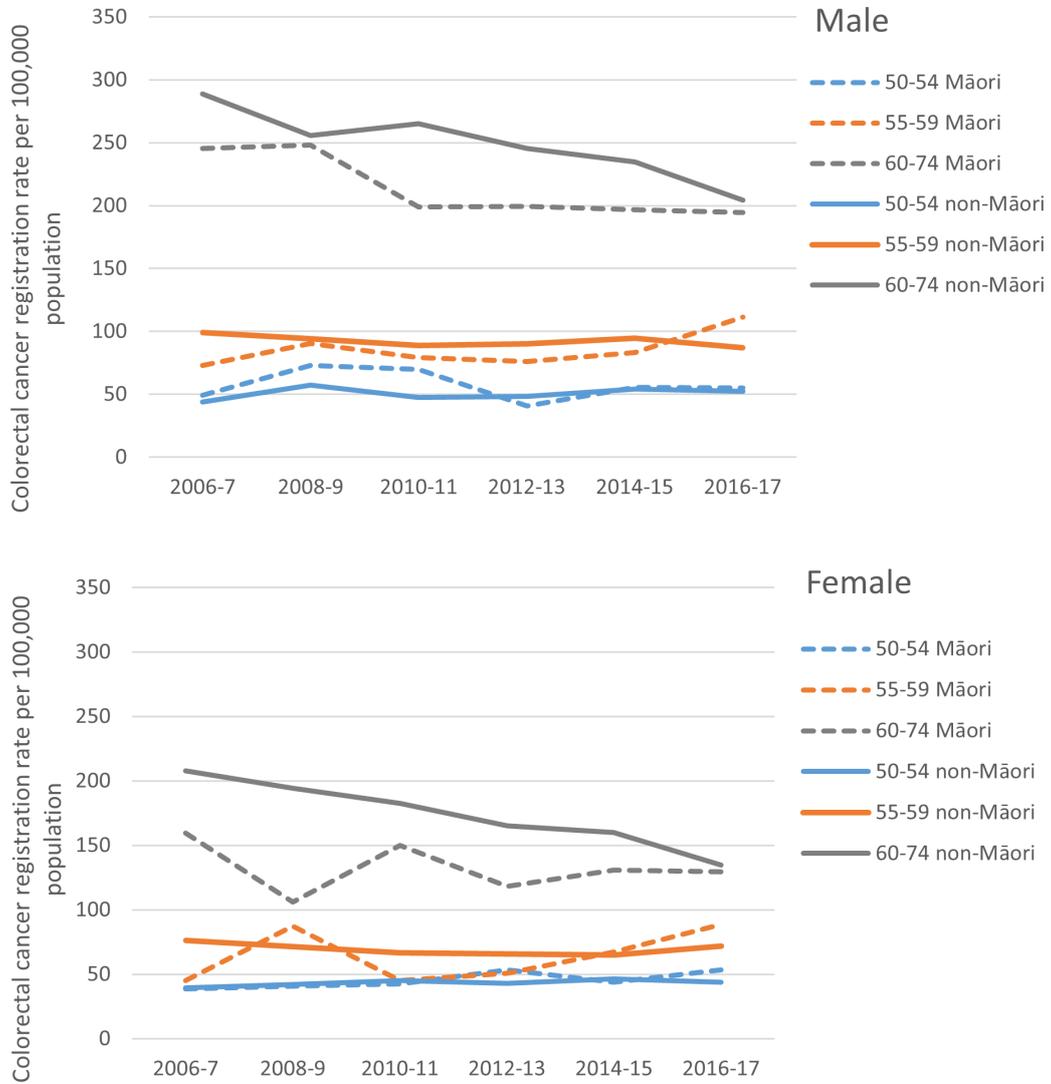


Figure 4: Colorectal cancer registrations by age, sex and ethnic grouping, 2013–2017 (excluding Waitemata DHB).



Competing interests:

Dr Crengle reports personal fees from Chair of Te Waipounamu Māori Cancer Leadership Group (Southern Cancer Network (now Southern Hub, Te Aho o te Kahu)) and grants from Co-Director of Cancer Society Research Collaboration, University of Otago, outside the submitted work. She is also Medical Advisor, Bowel Cancer New Zealand, and a Member He Ahuru Mowai (National Māori Cancer Leadership Group). Dr Robson reports other contracts from Ministry of Health, outside the submitted work, and is Member of Hei Āhuru Mōwai. Dr Paine reports grants from Health Research Council of New Zealand during the conduct of the study. Dr Scott reports personal fees from Te Aho o Te Kahu Advisory Council member outside the submitted work and is member of Bowel Screening Advisory Committee, Ministry of Health, and Co-Chair of Hei Āhuru Mōwai—Māori Cancer Leadership Aotearoa. Dr Harris reports grants from Health Research Council of New Zealand during the conduct of the study and personal fees from Ministry of Health outside the submitted work. Dr McLeod reports grants from Health Research Council of New Zealand during the conduct of the study, personal fees from Waitematā and Auckland DHBs outside the submitted work and is a member of the Bowel Screening Advisory Group and the COVID expert advisory group, Ministry of Health.

Acknowledgements:

We would like to thank the National Screening Unit, Ministry of Health, for providing the data. This research was supported (in part) by a contract from the Health Research Council of New Zealand (HRC 20/152). Researchers are independent from funders. The study funders/sponsors had no role in the study design, collection, analysis or interpretation of data.

Author information:

Melissa McLeod: Department of Public Health, University of Otago, Wellington.
 Ricci Harris: Department of Public Health, University of Otago, Wellington.
 Sarah-Jane Paine: Te Kupenga Hauora Māori,
 Faculty of Medical and Health Sciences, University of Auckland, Auckland.
 Sue Crengle: Department of Preventive & Social Medicine, University of Otago, Dunedin.
 Donna Cormack: Te Kupenga Hauora Māori,
 Faculty of Medical and Health Sciences, University of Auckland, Auckland.
 Nina Scott: Clinical Director Māori Public Health, Waikato District Health Board.
 Bridget Robson: Te Rōpū Rangahau Hauora a Eru Pōmare,
 Department of Public Health, University of Otago, Wellington.

Corresponding author:

Melissa McLeod, Department of Public Health, University of Otago, Wellington
 melissa.mcleod@otago.ac.nz

URL:

www.nzma.org.nz/journal-articles/bowel-cancer-screening-age-range-for-maori-what-is-all-the-fuss-about

REFERENCES

- Hewitson P, Glasziou P, Irwig L, et al. Screening for colorectal cancer using the faecal occult blood test, Hemoccult. *The Cochrane database of systematic reviews* 2007;2007(1):Cd001216. doi: 10.1002/14651858.CD001216.pub2 [published Online First: 2007/01/27]
- Cole SR, Tucker GR, Osborne JM, et al. Shift to earlier stage at diagnosis as a consequence of the National Bowel Cancer Screening Program. *Med J Aust* 2013;198(6):327-30. doi: 10.5694/mja12.11357 [published Online First: 2013/04/03]
- McLeod M, Kvizhinadze G, Boyd M, et al. Colorectal cancer screening: How health gains and cost-effectiveness vary by ethnic group, the impact on health inequalities, and the optimal age-range to screen. *Cancer Epidemiology Biomarkers & Prevention* 2017 doi: 10.1158/1055-9965.epi-17-0150
- Love T, Poynton M, J. S. The cost effectiveness of bowel cancer screening in New Zealand: a cost-utility analysis based on pilot results. Wellington Sapere Research Group, 2016.
- 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;64(2):117-23.
6. Hill S, Sarfati D, Blakely T, et al. Ethnicity and management of colon cancer in New Zealand: do indigenous patients get a worse deal? *Cancer* 2010;116(13):3205-14. doi: 10.1002/cncr.25127 [published Online First: 2010/06/22]
 7. Paine SJ, Cormack D, Reid P, et al. Kaupapa Māori-informed approaches to support data rights and self-determination. *Indigenous Data Sovereignty and Policy* 2020 Oct 29:187.
 8. Navarro M, Nicolas A, Ferrandez A, et al. Colorectal cancer population screening programs worldwide in 2016: An update. *World J Gastroenterol* 2017;23(20):3632-42. doi: 10.3748/wjg.v23.i20.3632
 9. IARC. Estimated age-standardized incidence rates (World) in 2020, all cancers, both sexes, ages 50–59 : International Agency for Research on Cancer; 2020 [31 March 2021]. Available from: https://gco.iarc.fr/today/online-analysis-map?v=2020&mode=population&mode_population=continents&population=900&populations=900&key=asr&sex=0&cancer=39&type=0&statistic=5&prevalence=0&population_group=0&ages_group%5B%5D=10&ages_group%5B%5D=11&nb_items=10&group_cancer=1&include_nmssc=1&include_nmssc_other=1&projection=natural-earth&color_palette=default&map_scale=quantile&map_nb_colors=5&continent=0&show_ranking=0&rotate=%255B10%252C0%255D accessed 31 March 2021.
 10. Te Aho o Te Kahu, Ministry of Health. Update on the National Bowel Screening Programme including equity considerations. Wellington: Ministry of Health and Te Aho o Te Kahu (Cancer Control Agency), 2020. Available from: <https://www.nzdoctor.co.nz/sites/default/files/2021-02/Ministry%20of%20Health%20Report%20on%20Bowel%20Cancer%20Screening%20Age.pdf>
 11. Te Ohu Rata o Aotearoa (Māori Medical Practitioners Association). A Te ORA Equity Series position statement: The National Bowel Screening Programme is exacerbating Māori health inequities. Wellington: Te ORA, 2019.
 12. Jones R. Inequity is not a bug in the system — it's a feature: E-Tangata 2020.
 13. Te Aho o Te Kahu. He Pūrongo Mate Pukupuku o Aotearoa 2020, The State of Cancer in New Zealand 2020. Wellington: Te Aho o Te Kahu, Cancer Control Agency, 2021.