



A Clinical Audit Snapshot of Prostate Serum Antigen (PSA) Test Results for Pacific Men From Two Primary Health Care Clinics in the Auckland Region, New Zealand

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ABSTRACT

Prostate cancer is the most common malignancy registered in New Zealand and is the third most common cause of cancer death in men after lung cancer and bowel cancer. Prostate Serum Antigen (PSA) testing has been used to screen for prostate cancer. The following paper provides a clinical audit snapshot of Prostate Serum Antigen (PSA) test results for Pacific men from two Primary Health Care Clinics in the Auckland region, New Zealand. Two Auckland primary health care clinics provided anonymised data on prostate serum test results for their male patients along with ethnicity, age, and birthplace. Descriptive summaries of the data are presented as frequencies and percentages of positive test by age and by ethnic group. Logistic regression analysis was used to test for significant differences by ethnic group, age group and birthplace (NZ born versus overseas born). Two clinics which have predominately Pacific patients provided anonymised results of prostate serum antigen test results from 2009 – 2018. There were 5,787 prostate serum antigen level tests available from clinic 1 and clinic 2 had 493 patients. Most of the clinic patients tested were New Zealand born (5655, 90%) compared to overseas born (625, 10%). Ethical approval was granted from the University of Auckland Human Subjects Ethics Committee (UAHPEC) Reference 019194). Samoans compared to Europeans were significantly more likely to have a positive test compared to Europeans & other ethnicities. Cook Island Maori men were significantly less likely to have a positive test result compared to European and other ethnicities. Older individuals are more likely to have positive PSA results

which shows that this is very similar and consistent with the current literature. Those being born overseas compared to being New Zealand born were significantly less likely to have positive serum antigen results.

Keywords: PSA testing, Prostate cancer, clinical audit, Pacific men.

BACKGROUND

Cancer has been a significant health problem for many Pacific communities in New Zealand and it is well known that cancer rates have not improved in the last 30 years (Lawerson et al (2014, Ministry of Health 2012a, & 2012b). For Pacific people cancer has been a significant health problem for many Pacific people in New Zealand (Foliaki 2004, Finau 2001).

Prostate cancer has been a leading cause for high mortality rates for Pacific men (Medical Council of NZ & Mauri Ora Associates 2010). A study which focused on cancers disparities for indigenous populations for Maori, Native Hawaiians and Pacific people found that Pacific people cancers rates were not well known in comparison to Maori and Native Hawaiians. The study found that cancer mortality rates were higher for Maori and Pacific populations (Dachs et al 2008).

Mortality from prostate cancer is said to be rising in Pacific men (Matti et al 2021). However, the incidence rate is lower than for European men. PSA testing has been shown to be variably applied in New Zealand general practices (van Rij 2013, Obertova 2012). It is well known that the risk for developing prostate cancer increases as Pacific men get older (Meredith 2012, Sneyd 2008).

METHODS

Two health care providers with a large number of Pacific male patients provided anonymised results of prostate serum antigen test results from 2009 – 2018. A total of 6,280 patients was included in this study. There were 5,787 prostate serum antigen level tests available from clinic 1 and 493 from clinic 2. Most of the clinic patients tested were New Zealand born (5655, 90%) compared to overseas born (625, 10%).

Both clinics use Medtech32 to extract key information for health issues. A query builder was used to develop the key variables for data analysis. The key terms used in the query builder was PSA male test results, ethnicity, place of birth. This was then extracted into an excel sheet. This data was cross checked with the Primary health care organization data base for the correct PSA test results, ethnicity, and birthplace. Ethical approval was granted from the University of Auckland Human Subjects Ethics Committee (UAHPEC) Reference 019194).

RESULTS

The proportion of positive test outcomes was lower amongst the younger age groups. There is considerable variation in proportion of positive test results by age and ethnicity (Table 1 & Figure 1). Confidence intervals are wide due to the smaller sample sizes. Some categories have been aggregated to protect privacy where counts were less than 6.

Table 1 Test results at clinic by age and ethnic group

	Positive Serum Antigen (n)	Total (N)	(%)	95% Confidence Range
Age Group				
<50 years	28	396	7.1	(4.8-10.1)
50-59	86	1,747	4.9	(4.0-6.0)
60-69	224	2,359	9.5	(8.3-10.8)
≥70 years	493	1,777	27.7	(25.7-29.9)
<i>Pacific ethnicities</i>				
Samoan	243	1,372	(17.7)	(15.7 - 19.8)
Tongan	14	224	(6.3)	(3.5 - 10.3)
Cook Island Māori	13	291	(4.5)	(2.4 - 7.5)
Niuean	21	178	(11.8)	(7.5 - 17.5)
Pacific Island nfd	10	200	(5.0)	(2.4 - 9.0)
<i>Other ethnicities</i>				
NZ Māori	97	659	(14.7)	(12.1 - 17.7)
Asian	121	749	(16.2)	(13.6 - 19.0)
Indian	40	709	(5.6)	(4.1 - 7.6)
European & other	271	1,888	(14.4)	(12.8 - 16.0)
missing		9		

This analysis of the data indicates some areas of interest and concern. Samoans compared to Europeans were significantly more likely to have a positive test compared to Europeans & other ethnicities after adjustment for age and country of birth (Figure 1). On a more positive note, Cook Island Māori men were significantly less likely to have a positive test result compared to European & other ethnicities. Older individuals are more likely to have positive PSA results – this is consistent with current epidemiological research. Finally, those born overseas compared to being New Zealand born were significantly less likely to have positive serum antigen results.

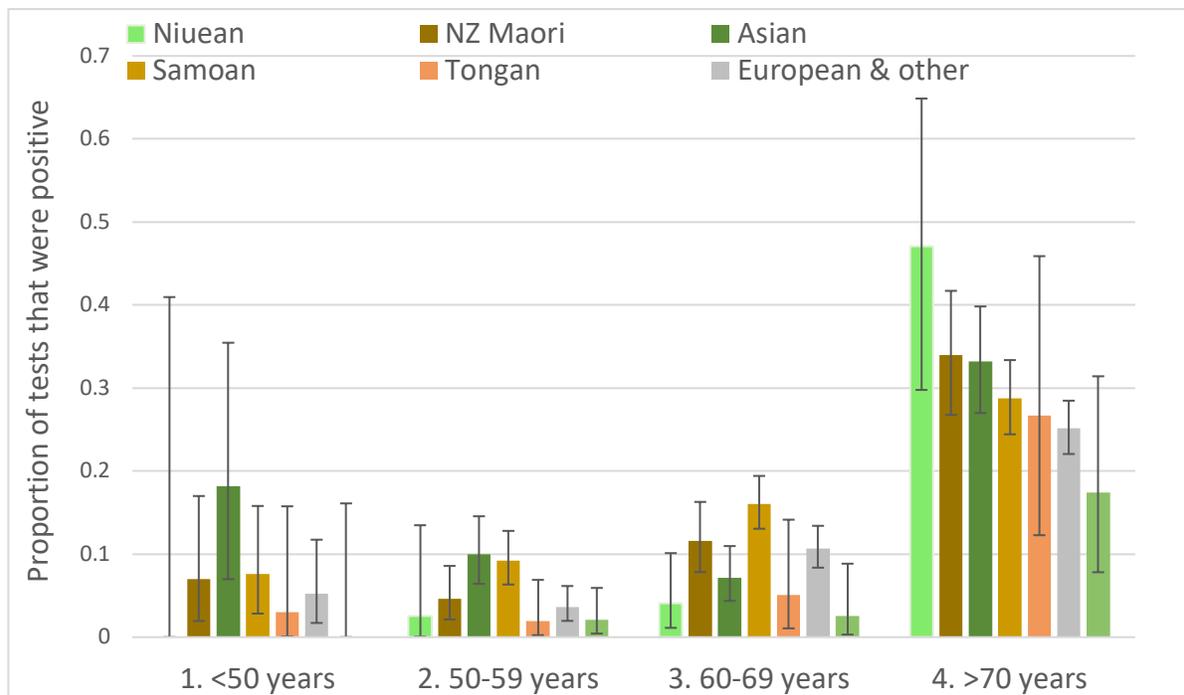


Figure 1. Proportion of positive test results by ethnicity and age presented with 95% confidence intervals

DISCUSSION

The results from the data found that Samoans compared to Europeans were significantly more likely to have a positive test compared to Europeans & other ethnicities. This could highlight that a large proportion of patients enrolled in these 2 clinics are predominately Samoan. This also reflects that the Samoan population is the largest Pacific population in New Zealand (New Zealand Statistics 2018).

For Cook Island Maori men we found that they were significantly less likely to have a positive test result compared to European and other ethnicities. The Cook Islands Maori population have been in New Zealand for a long time, and they are also NZ citizens. It maybe that they are aware of the services that are available for healthcare delivery and therefore will seek medical testing for PSA. This could also mean that a high proportion of Cook Islands Maori men may have a family history of prostate cancer and therefore are more likely to ask for screening and testing.

Older Pacific men are more likely to have positive PSA results which shows that this is very similar and consistent with the current literature and research by others have also confirmed these similar findings (Hodgson et al 2012, Brown et al 2015).

Those being born overseas compared to being New Zealand born were significantly less likely to have positive serum antigen results. Whilst this is a key finding Pacific men born overseas and who may have grown up in the Pacific Islands are aware of the health issues and screening tests around prostate cancer. It may also mean that PSA testing is a key feature of routine health checks in the Pacific Islands. Furthermore, culturally adapted health promotion activities could be shown as a positive platform for prostate awareness educational programmed they are used

within many of the Pacific Island's countries. Previous research has shown culturally adapted health promotion activities have been an effective mechanism for positive health seeking behaviours (Korogasagasa & Nosa 2021, Ofanoa et al 2021, Kaholokula et al 2018).

RECOMMENDATIONS

Given the disparate burden of prostate cancer in Pacific men we think the significant findings justify further exploration of prostate screening and diagnosis in primary health care with particular attention to within Pacific ethnic differences and birthplace. It is possible one or more aspects of acculturation has contributed to an increased risk of prostate cancer.

Primary health clinics may also need a better process of recording PSA testing results. Both the clinics identified that there was a need for better quality assurance data collection for using computer processes for collecting PSA test results.

PSA testing should be provided as a test just like doing a routine blood test. If a patient has a history of prostate cancer, then this should be kept on their medical file. More PSA screening tests should be made compulsory if a patient has a family history for prostate cancer.

For the clinics there should also be an alert or recall process that as the patient gets older, they should be made aware that a routine prostate cancer assessment should be available for PSA testing.

The key messages that can be learnt from this audit is ethnic differences were highlighted between the ethnic groups. These services should provide culturally ethnic specific health promotion services that will need to be tailor made for each specific ethnic group for prostate cancer awareness and education.

The birthplace of patients who were born overseas also highlighted lower rates of PSA testing and those patients who were born in New Zealand had higher rates of PSA testing. Further education activities should highlight the need to developing media forms such as pamphlets and educational videos for older Pacific men in the own ethnic languages.

The promotion of PSA testing amongst Pacific men needs to be promoted widely in the Pacific community and Pacific churches so Pacific men can have access to primary healthcare services that are equitable for reducing poor health disparities. Further promotional strategies need to encourage a higher uptake of PSA testing amongst Pacific men.

Given that this audit had only two clinics with a large proportion of Pacific men, further work is still needed to recruit other clinics which have a higher Pacific male enrollment and further audits could look at clinics outside of the Auckland region.

CONCLUSION

This is the first study in New Zealand that we know that has examined prostate serum antigen testing results by Pacific ethnicity and from two clinics that have a high number of Pacific men enrolments. Caution is needed in interpreting results based on a small local study and non-random sampling. Further research is needed around the issues for PSA testing for Pacific men in New Zealand.

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