Continuous Quality Improvement V2 Report
HPV Screening Pilot Study

Introduction and Background

1.1 Identified Problems and Rationale for Proposed Project

Almost all cervical cancer is caused by the human papillomavirus (HPV). Regular cervical screening can detect changes of the cervix so treatment can be provided before they become cancers. There has been a steady decline in cervical cancer mortality in New Zealand since the National Cervical Screening Programme (NCSP) was introduced in 1990 and subsequent the introduction of HPV vaccination in 2008. However, the coverage of cervical screening has seen a decline since the start of the current COVID pandemic in early 2020. Nationwide, the 3 year coverage has decreased from 71.1% in 2019 to 67.1% in 2022. Although the decline is seen across all ethnicities, the highest decline of screening is seen in the Māori and Pacific Islander population with a decrease of 8.3% and 10% respectively. Māori from 63.3% in 2019 to 55% in 2022 and Pacifica from 65.7 in 2019 to 55.7 in 2022 (from NCSP coverage report data). The NCSP target coverage is 80%.

At Doctors on Riccarton (DOR), cervical screening coverage has been much lower than the national figures. At the beginning of 2020 the coverage at DOR was 54.2% for the total enrolled population and 55.8% coverage for Māori and Pacific patients. DOR has seen a significant decline in cervical screening since the start of the COVID pandemic. In the quarter ending 30 September 2022, the report supplied by our PHO showed coverage for our total population had dropped to 45.9% (i.e. an 8.3% decrease) whereas the Māori and Pacific peoples had dropped to 43.8% (i.e. a 12% decrease).

NCSP has indicated that a more sensitive and less invasive HPV self-test will be introduced in July 2023 as part of the cervical screening programme to allow earlier identification of high-risk people. A select group of General Practices across NZ were approached by a research team partnered with the University of Otago to participate in an HPV pilot study to look at the best way to introduce the HPV test, the aim being to increase screening coverage and promote earlier identification of high needs people. We were one of the practice's approached for the pilot study due to our low cervical screening coverage.

The Clinical Governance team at DOR (Clinical Director, Dr Colin Chin; Practice Manager, Marina Chin; Head Nurse, Lynne Doubleday; and Nurse Prescriber, Vivian Huang) decided that participation in the HPV screening pilot study would be an ideal opportunity to improve the Practice's cervical screening statistics, focus being given particularly to the Māori and Pacific population, in line with our Health Equity Policy.

1.2 Overall Aim and Timeframe

Our aims of this HPV Pilot Study Project are:

1. To increase uptake of cervical cancer screening for DOR's total eligible population by 5% over the next 6 months (from 13 Sep 2022).
2. To provide equity in screening uptake by developing strategies to achieve increased screening outcomes for our Māori and Pacific patients by a minimum of 15%, bringing percentages in line with the total population in our practice.
3. To provide catch up screening for our patients who have missed out over the last 3 years during COVID and review our procedures to increase sustained uptake and maintain levels of screening more in line with the National averages, ideally eventually reaching the nationwide average of 71%, if not the target of 80%.
4. To provide an alternative, less invasive self-testing option to encourage uptake
5. To achieve the Study target of 200 recruited patients and to provide in depth information of our practice experience during the study to help influence and assist in the ease of rolling out HPV testing nationwide
6. To be up and running and skilled when HPV testing is rolled out to the general population

The proposed time frame for this project is 6 months, from 13 September 2022, to 28 February 2023 (the Study's end date for data collection). We have clinical leadership roles assigned involving our practice manager, head nurse and nurse prescriber. All cervical smear takers are participating in either referrals or actual screening. Practice administrators and receptionists are participating by making appointments, doing necessary paperwork and invoicing.

1.3 Triple Aim

1. Improved Quality, Safety and Experience of Care

HPV self-test can be performed by patients themselves which provides more privacy, less discomfort, less requirement for equipment to be used by the practice and less chance of any potential infection transmission to patients or health practitioners. Due to the less invasive nature of this method and the increased effectiveness of the test at detecting abnormal results, all of the above requirements will be incorporated. The pre-screening questionnaire for testing will still be provided to all patients to ensure the information needed to discuss the appropriate option of screening with the patient is given and understood.

2. Improved Health and Equity for all Populations

A more effective and less invasive procedure which is able to be done by the patient themselves will likely reduce barriers to access and provide better health outcomes for the individual. We propose to recall our Māori and Pacific populations as a priority. We will involve our multilingual staff in the process and utilise available cultural resources to reduce inequity.

3. Best Value for Public Health System Resources

The more effective test will mean those who are at highest risk will be prioritised and receive the care needed. "Compared with a traditional cervical cytology test, the high risk human papillomavirus (hrHPV) test has been shown in a number of randomised clinical trials to offer greater sensitivity for the detection of precancerous abnormalities and greater protection against cervical cancer" (HPV-based Screening Implementation Study Protocol University of Otago). These preventative measures will likely reduce the need for costly, unnecessary procedures.

Methodology

The Plan-Do-Study-Act (PDSA) quality improvement cycle will be used to guide the process of our CQI project which can help the practice as a whole deliver improvement in patient care through a structured approach, continual adaptation and improvement. One quality improvement cycle will be reported below. However, repeated quality improvement cycles will be utilised by the practice for ongoing development and improvement.

Quality Improvement Cycle

2.1 Plan

PROJECTION PREPARATION

23rd August 2022: Research Fellow Carrie Innes (CI) and Clinical Charge Nurse Rebecca Bell (RB) presented the HPV Pilot Study for our consideration.
31st August 2002: A subsequent meeting was held between the DOR Clinical Governance team and the UO Research Team to go over in more detail and Q&A regarding the study.

The following procedures and actions were performed prior to the Study's commencement at DOR.

- Study agreement and role delegation form etc. were signed by DOR and UO Research Team.
- A DOR HPV Pilot Study Procedure Flow Chart was developed
- Email/Letter/Text templates were generated for Study invitations to patients
- Keywords were developed to support clinician to assist HPV study testing documentation
- Invoicing and charging were decided upon and receptionists/administrators were informed of these
- Recall procedures, priority groups, potential difficulties and solutions, selected smear/HPV takers and study time frame were discussed
- The Study was introduced to the whole DOR team at a staff meeting, so everyone could offer and encourage eligible patients to participate, including opportunistic testing when patients turn up for other appointments
- Posters were placed in our waiting rooms
- Māori and Pacific versions of the Study pamphlets were made available for everyone to use and give to patients to encourage participation
- Staff with language abilities other than English would be actively involved in recalling and testing to improve health equity, with external translation to be used if needed
- It was agreed among key persons that we will review the progress of the project informally, on a regular basis or as needed. A review and report to staff will be provided to staff at 3 months or when required
- Indici PMS Recall contact list is used to recall patients and checking for progress
- Indici PMS Quality Indicator is used to check baseline data, identify priority group data and quarterly screening data from PHO
- NCSP spreadsheet is used to review overdue list, and record contact frequency, dates, methods and decline
- REDCap, an online database with consented participants' detail from UO is used to enter data and assist with data analysis

KEY PEOPLE INVOLVED IN THE PROJECT

Internal staff

- Dr CC - Practice Study Investigator who will support and oversee the clinical practice of this project
- MC - Practice Manager who will oversee the whole study
- LD & VH - Practice Study Lead Nurses
- All 11 nurse smear takers - who will perform the tests, enter data and participate in recalling patients
- Receptionists and Administrators - who will be involved in making appointments, invoicing, claiming and assisting in organising, scanning and filing necessary documents

External providers

- RB and CI from research team at UO
- Dr Peter Sykes (PS), study clinical lead and principal investigator, who provides external clinical guidance
- NCSP office who provides overdue screening patient lists and spreadsheet for data entry required for the study

Potential participants

- Enrolled patients at DOR who are due or overdue for cervical screening

PROPOSED RECALL PROCEDURE

It has been agreed that we will recall the potential participants 3 times within 3 months as per the Study requirement.

1st Invite

- Priority groups will be recalled first to ensure health equity. All Māori and Pacific patients who are eligible to participate in the study will be invited first (by email or text). Ethnicity codes in the Indici PMS include: Māori, Tokelauan, Fijian, Niuean, Tongan, Cook Island Māori, Samoan, Other Pacific Peoples, Pacific Peoples not further defined. There will be NO charge to these participants for testing.
- Other patients who are eligible to participate will be invited next (email or text).
- The total number of invites will be determined according to the initial response from participants. The proposed invites to be sent out were 400.

2nd Invite

- All previously invited patients who have not been in for the HPV tests will be recalled for the 2nd time approximately 1 month after 1st invite. The priority groups will be rung by nurses to provide more information about the testing and identify barriers to testing. If there are barriers, this information will be fed back to VH who will organise a phone consultation and/or other support if needed (e.g. flexible testing methods, contacting PCW or ethnic community groups for extra support, and access to funding).
- Due to the large number of recalls, patients not in priority groups who have not been in for the tests after the 1st invite will be recalled again but mainly via email and text.
- More 1st invites will be sent out if the study participant numbers are low.

3rd Invite

- 3rd invitations will be sent again to priority groups first followed by non-priority groups 1 month after 2nd invitation.
- Again more 1st invitations will be sent out if study participant numbers are low.
- Special clinics may be considered if participant numbers are still low.

2.2 Do

13th Sep: The Study procedures were explained in detail to smear takers at our weekly nurse meeting. All staff were informed about the commencement of the study at DOR. Smear takers started doing HPV tests.

13th Sep: baseline data was obtained from NCSP and Indici Quality Indicators July quarter report. Screening coverage for Māori and Pacific patients is 36.1% in Sep 2022 and for all enrolled population is 45.9% in Sep 2022 (see table 1).

13th Sep: 1st invites were sent out according to the proposed recall procedure. Due date of screening was selected to be before the 30th Sep 2022.

28th Sep: By this time a total of 439 first invites had been sent to potential participants including 123 invites to Māori & Pacific eligible patients. A few more recalls were sent later when missing recalls were discovered from checking against the NCSP spreadsheet.

29th Sep: a list of Māori and Pacific eligible patients were given to nurses to ring in Oct as per proposed recall procedure. The list consisted of 120 patients who had not responded to the 1st invites. Appointments were made for the participants who agreed to participate. With phone contact, patients were given the opportunity to have their queries answered and we were able to ask what were the barriers to testing and what support they would like us to offer. Text invites were sent to these participants when they were unable to be reached through phone calls.

14th Oct: VH started sending 2nd invites (mostly text) to other eligible patients who have not responded to the 1st invites.

28th Oct: meeting with the University Otago research team to discuss our progress. We had recruited about 130 participants at this point. We discussed whether to continue recruiting after we reach the 200 target. The Study will finish in March. It was agreed that we could continue to recruit patients after we reach 200, but we will recall patients and invite them to the study as we normally would rather than recalling patients once a month.

15th Nov: VH started sending out 3rd invites. Texts or letters were sent to Māori and Pacific patients who didn't respond to the 1st and 2nd invites (2nd invite already by phone call). Lists of other patients were given to nurses to ring or contact for the 3rd invite.

17th Nov: We identified an issue with patients who required follow up cervical smears due to a positive HPV result. As 75% of our patients are eligible for a free smear, if they were recalled following a positive result, there was no funding for this. After a zoom meeting with the Pegasus finance manager and the research team members, it was agreed that funding would be made available for those who were eligible.

25th Nov: We reached our target of recruiting 200 participants!

29th Nov: VH provided a summary of our progress and statistics to clinical staff at the fortnightly clinical meeting. More quality improvement reviews and staff updates will be provided in 3 months.

20th Dec: P Sykes, the research head, said they were limiting the funding to 500 patients (we have surpassed our 200 patient target for the study). We have chosen to continue actively recruiting Māori and Pacific patients for HPV screening until the end of the study on 28 February. However, due to limited numbers, we will recall all other eligible patients as per our usual processes.

2.3 Study

When we analysed the lessons learned and reviewed our progress and quality improvement cycle, we used Strengths-Weaknesses-Opportunities-Threats (SWOT) tool to guide our process and assess against our original project aims.

Strengths/Successes

- *Increased screening uptake and Improved Equity for all Population*

Prior to the Pandemic our cervical screening coverage for the total population was 16.9% below the National average coverage and 25.75% below the National target. Our coverage for Māori and Pacific were 8.7% below our total population.

Despite only 3 months from the start of the project, we have reached the target of 200 recruited participants. We have seen an increase of 10.9% screening coverage from September for Māori and Pacific patients and an increase of 3.7% for the whole enrolled patients. The coverage for the Māori and Pacific population has increased to above the pre-pandemic level.

Table 1

		31 Mar 2020 (Start of Covid Pandemic)	30 Sep 2022 (At start of HPV Study)	Oct 2022 Monthly screening coverage	Nov 2022 Monthly screening Coverage	Dec 2022 Monthly screening Coverage (as at 18/12/22)
Māori and Pacific	**Have had screening**	101	92	104	115	116
	Eligible for screening	222	255	247	247	247
	% screened	**45.5%**	**36.1%**	**42.1%**	**46.6%**	**47.0%**
All DOR Eligible Patients	**Have had screening**	2101	1939	1889	2021	2050
	Eligible for Screening	3873	4226	4133	4133	4133
	% Screened	**54.2%**	**45.9%**	**45.7%**	**48.9%**	**49.6%**

Furthermore, the Māori and Pacific study participants are over-represented in the Study compared to their representation in our total enrolled population which is an indicator of improvement in health equity.

	DOR Recruited Percentage (approx.)	DOR Population Percentage (approx.)
Māori and Pacific	(29) 9.3%	(247) 6.0%

- *Improved Safety and Experience of Care*

Patients indicated to smear takers that they are very happy that self-testing option is offered. It is a lot less invasive and more convenient for them. Some said they would definitely recommend the test to their whānau and friends. Smear takers also needed to use less materials, less cleaning and observed more patient satisfaction. Additionally, our staff received sufficient clinical information and gained experience in HPV testing which have given the whole practice confidence in the practical aspects when the nationwide HPV testing rolls out next year.

- *Improved Quality of Care*

Seven participants returned a non-16 & 18 HPV positive results and their subsequent cytology was normal. They will be recalled for next screening in 12 months instead of the recommended 3 years as per NCSP current guideline. Their early risk identification was achieved. Six participants returned a 16 & 18 HPV positive result which gave them direct access to colposcopy.

Weaknesses/Challenges

- We discovered that HPV swabs were often not done or mislabelled if they were given to patients to take home to do it. Nurses had to spend extra time chasing these swabs. If patients do not return the swabs, despite us completing all pre-screening questionnaires and consents, we do not receive funding for the work up done.

- We discovered during the Study that some clinicians didn't enter the screening results in the right place with previous screening. Therefore, unnecessary screening was performed. We do not have instant access to the NCSP to patients' cervical screening history. Again, unnecessary screening tests were performed, e.g., much earlier screening than needed.

- At the early stage of the Study, most participants were recruited through opportunistic screening. The response to recalls/invites was relatively low. By mid-November, 64% were opportunistic screening. Initially the opportunistic figure was a lot higher. Therefore, it took time for people to respond to recalls and make an appointment. 14.5% participants responded to the 1st invite, 19.3% participants responded to the 2nd invite and 1.9% participants responded to the 3rd invite. The response and success rate for booking an appointment was higher when the participants were phoned, especially with the Māori and Pacific participants.

Opportunities

- When comparing the spreadsheet sent by NSCP, we discovered a large number or missing cervical smear recalls. We discovered that some were due to system issues (migrating to Indici from Medtech) and human errors. This had prompted an urgent internal audit and a separate quality improvement project.

- We provided regular feedback and reports to the Research Team regarding pros and cons of the Study. We also raised our concerns regarding no funding for subsequent cytology appointments. These have given us a chance to contribute to the nationwide programme roll-out improvement and actively advocate for our patients to achieve better health and health equity.

Threats

The funding for follow-up appointments to perform cytology due to positive HPV results may not be permanent. If this funding is not available when the HPV testing programme is rolled out nationwide next year, the costs to patients will increase which can be a financial barrier and lead to not attendance or delay treatment to these high-needs patients. Alternatively, if these patients are not charged for these follow appointments, the business may face a financial threat as it's estimated that 10% of the screening patients may return a positive HPV result and subsequently need cytology tests. This can be a potential threat to patients' health, the business's financial sustainability and the health system as a whole.

2.4 Act

Although it has been only just over three months since the project started, we have seen significant benefits to our patients and the practice. Below is our plan for improvement, the rationale and our intended goals for the next quality improvement cycle which is due in March 2023.

- We have partially achieved our aim 1) by increasing the screening uptake of 3.7% for the total eligible population from the end of September 2022 to 18 December 2022. We will continue to recruit and are confident that we will achieve or exceed a 5% increase by the end of the next quality improvement cycle.

- We have partially achieved our aim 2) by increasing the screening uptake of 10.9% for Māori and Pacific population from the end of September 2022 to 18 December 2022. Their responses were proven to be better with phone call invitations. We will utilise our data screeching tools to identify high-needs patients, so the time to ring them can be prioritised as we won't be able to ring every patient at the first invite. Additionally, we will consider a 4th invite to this population with a focus on what their reported barriers are and arrange for external support if needed. We will utilise the available Māori and Pacific versions of Study information and pamphlets to achieve a more culturally appropriate approach.

- We will continue to work on achieving aim 3). We clearly see an increased uptake of screening due to the convenience of HPV testing. We will use this great opportunity to recall patients actively to eventually reach the national target. As we discovered the missing recalls during the project. Smear recall nurse will run a query every month in PMS and check against the NCSP spreadsheet to ensure there are no more missing recalls.

- Patients' feedback has suggested that our aim 4) has been achieved. We will continue to offer more walk in and opportunistic screening appointments to encourage uptake since these methods were widely appreciated by the patients. Special screening clinics or weekend clinics may be considered in the future if needed.

- We have exceeded our target of 200 recruits in only 2 months. We achieved aim 5) by providing regular updates and feedback to the research team. We have also highlighted the need for more funding to support patients who need to return for cytology appointments. We suggested to the research team to provide resources in different languages. We will continue to regularly communicate with the research team. We will consider developing our resources in different languages with our staff's multi linguistic skills.

- We achieved aim 6) by providing regular training and updates to smear takers re HPV testing. We will continue to provide training, regular updates to staff. NCSP has indicated that formal training will be provided prior to the HPV roll out in July 2023. Staff will be encouraged to do this. VH will continue to attend regular relevant webinars to provide updates to the team as well. The staff readiness will be assessed again in 3 months.

- Due to the mislabelled samples or not returning samples by patients, the Practice will encourage patients to come in for the test. Opportunistic screening will be offered to patients when they come in for consultations, as well those who walk-in. However, we will still offer other options if needed. We will reinforce with the receptionists to call the triage nurse to check all the details are correct before the patient has departed from the practice and before the swab is accepted and sent to the lab. Feedback regarding this will be given to the research team so they can consider multiple options for patients with different needs.

- Due to the wrong or missing records, staff will be informed to check screening history more carefully. HealthOne and/or ringing NCSP should be the more reliable options to get a full screening history. Staff will be shown again how to enter all results and records correctly. Staff will be shown how to use the online NCSP register which will be available next year for direct access by providers. An audit of correct result entry will be performed at the end of the next quality improvement cycle.

- Patients will be informed of the Study outcome via our Practice website.

- DOR will obtain the Patient Experience Survey performed by the Research Team at the end of the Pilot study, so the further quality improvement suggestion can be reviewed and considered for the practice.

All above planned activities will be performed as soon as possible. The proposed next quality improvement cycle will be assessed in March 2023 against all original aims and the proposed plans mentioned above.