Changing cervical cancer prevention strategies

What's happening in New Zealand?

Dr Margaret Sage
NCSP Clinical Lead, Pathology

Time to screen

National Cervical Screening Programme

New Zealand Government

Aotearoa New Zealand

2017 Census

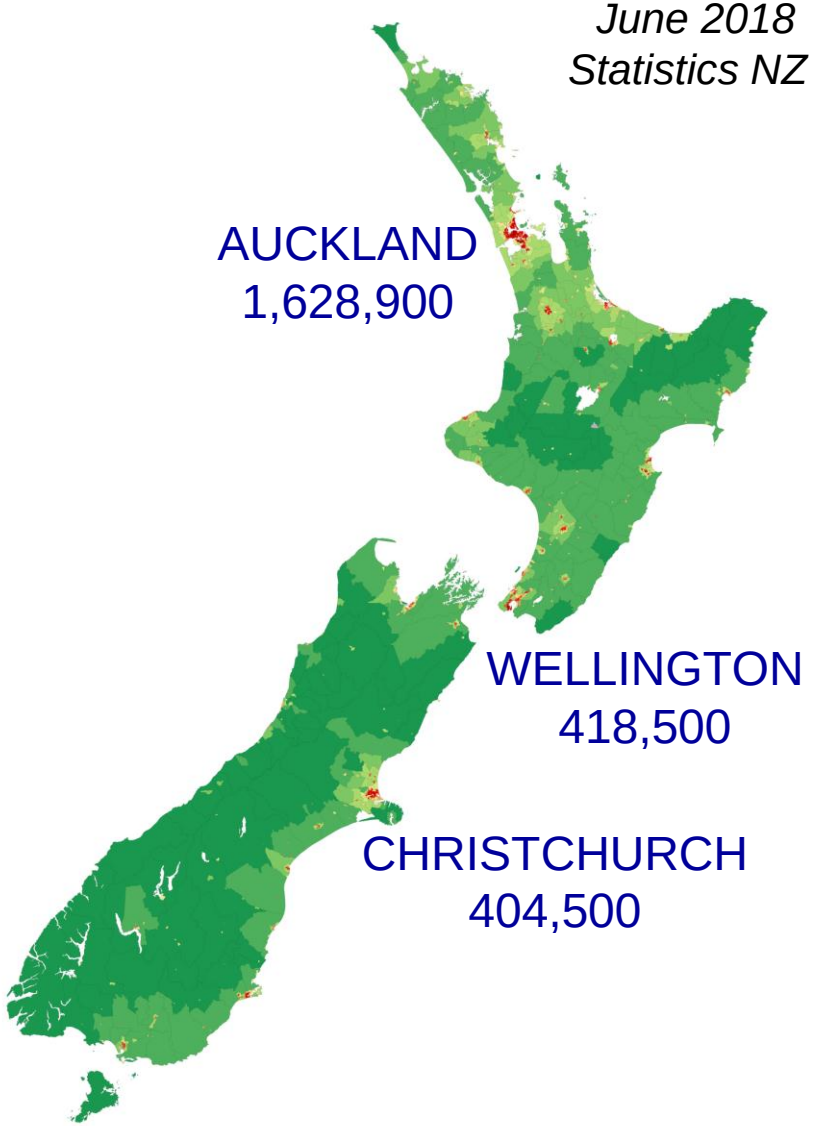
Total NZ Population

4,749,598

European/Pakeha	74.0%
Maori	14.9%
Asian	11.8%
Pacific	7.4%

Population of main cities

June 2018
Statistics NZ



Treaty of Waitangi (Te Tiriti o Waitangi) signed 1840

National Cervical Screening Programme

Cytology-based screening for women 20-69 years of age with a 3-yearly screening interval

- 100% LBC since 2009
- hrHPV testing is used for
  - Triage of low-grade cytology for women 30+years with no cyto/histo abnormality in the last 5 years
  - Test of cure after treatment of high-grade squamous lesions
  - Specialist-ordered testing for managing women with discordant histo/cyto/colposcopy results

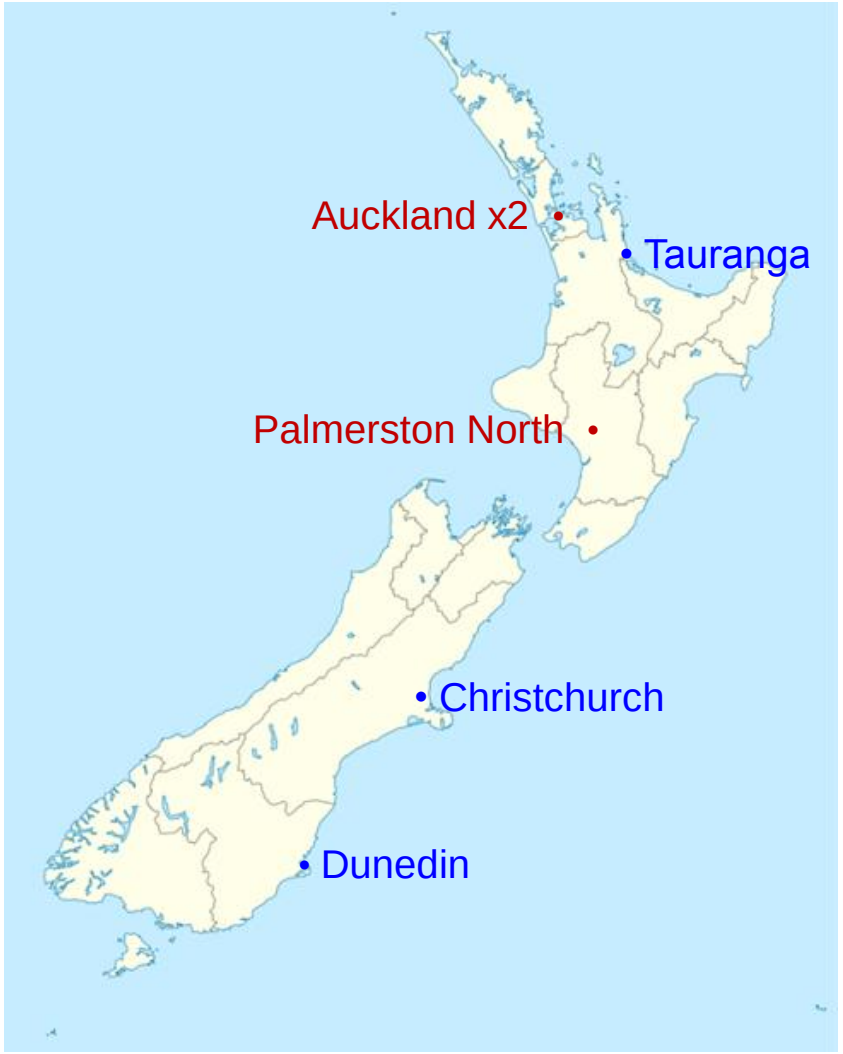
Laboratories reporting to the NCSP

Six laboratories report 440,000 LBC cytology samples per year
3 use ThinPrep, 3 use SurePath

Laboratories are required to perform and report their own hrHPV tests:

- 3 labs use Roche Cobas 4800
- 2 labs use Abbott Realtime
- 1 lab uses BD Onclarity

An additional 9 laboratories report cervical histology but not cervical cytology or hrHPV tests



HPV Immunisation in NZ

HPV immunisation programme using Gardasil-4 commenced in 2008, free for women up to 20 years of age

The school–based programme for girls began in 2011 and has been much more successful in achieving coverage.

Since 1 Jan 2017:

Gardasil-9 is funded for both boys and girls aged 9-26 years (inclusive) with two-doses @9-14 years and three doses@15+ years of age

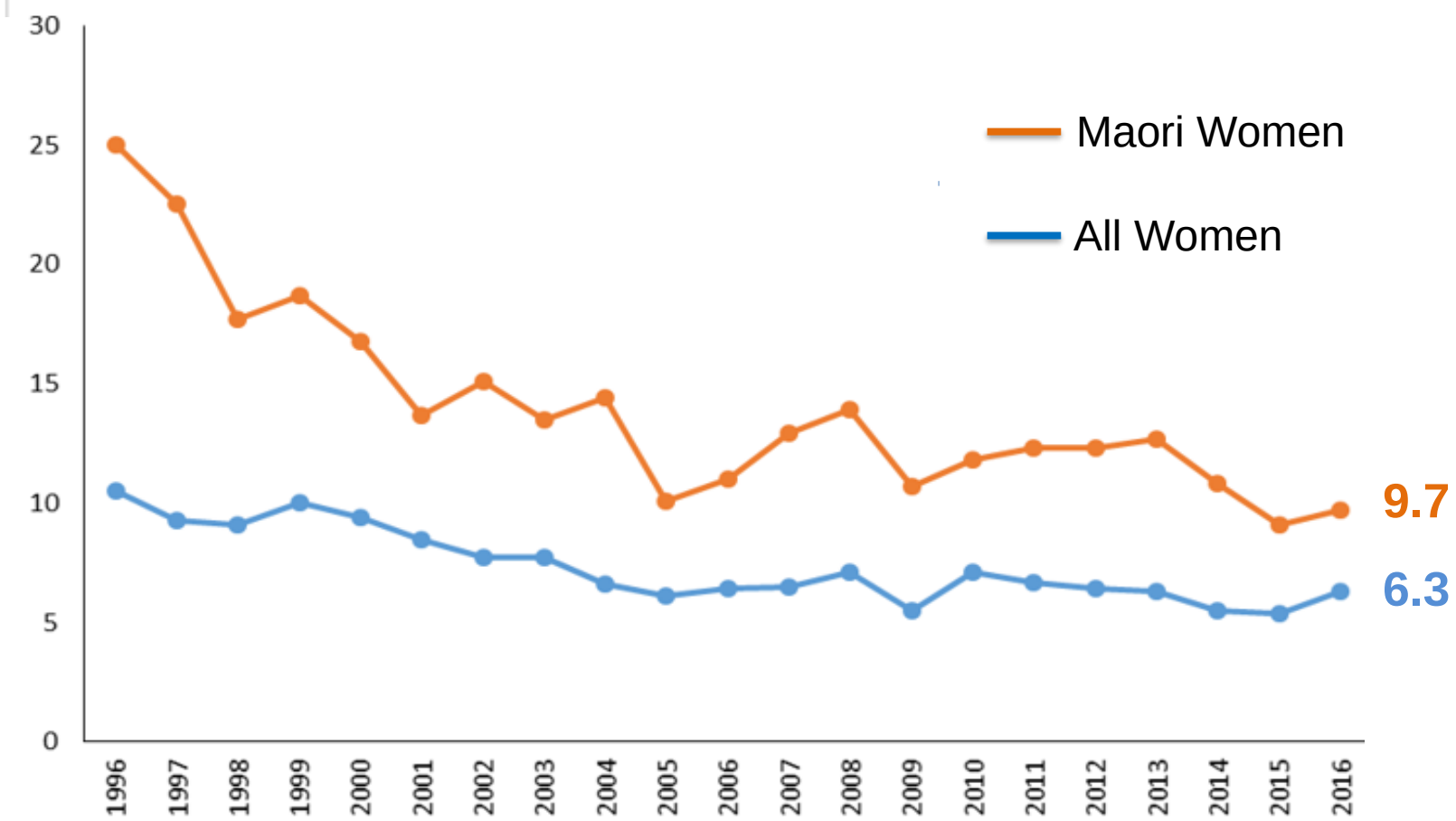
- Vaccination may be given after treatment of a high-grade lesion because it can still protect against other HPV subtypes

In 2017, approximately 70% of both boys and girls (10-11 years) were immunised against HPV

NCSP Annual Report 2016

Age-standardised (WHO) cervical cancer incidence rates

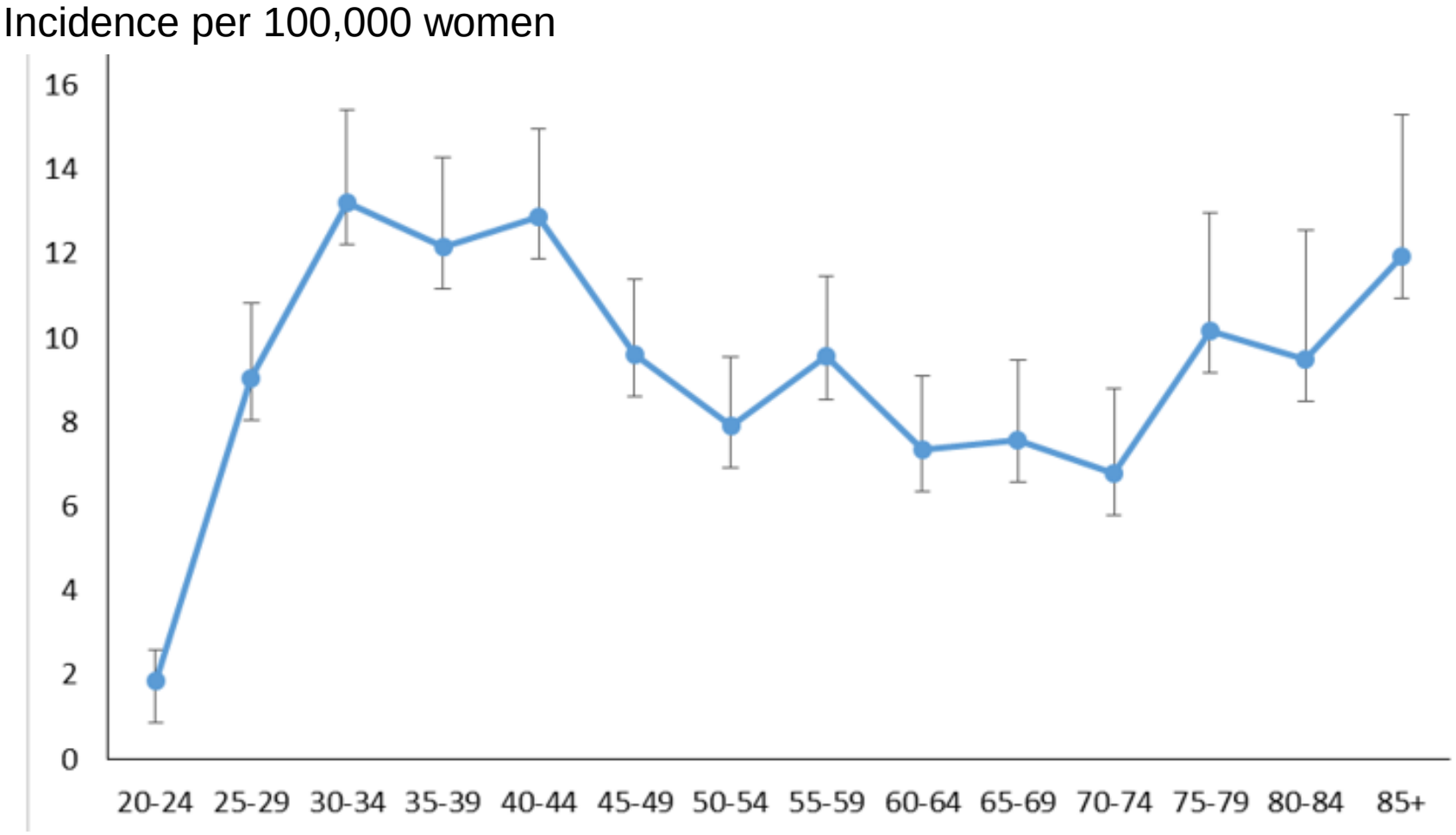
Incidence per 100,000 women



170 new cases in 2016

NCSP Annual Report 2016

Age-standardised (WHO) cervical cancer incidence rates in 5–year periods by age: 2012-16



NCSP Annual Reports 2011-2016

Cervical Cancer Incidence Rates in 5 year periods, by age

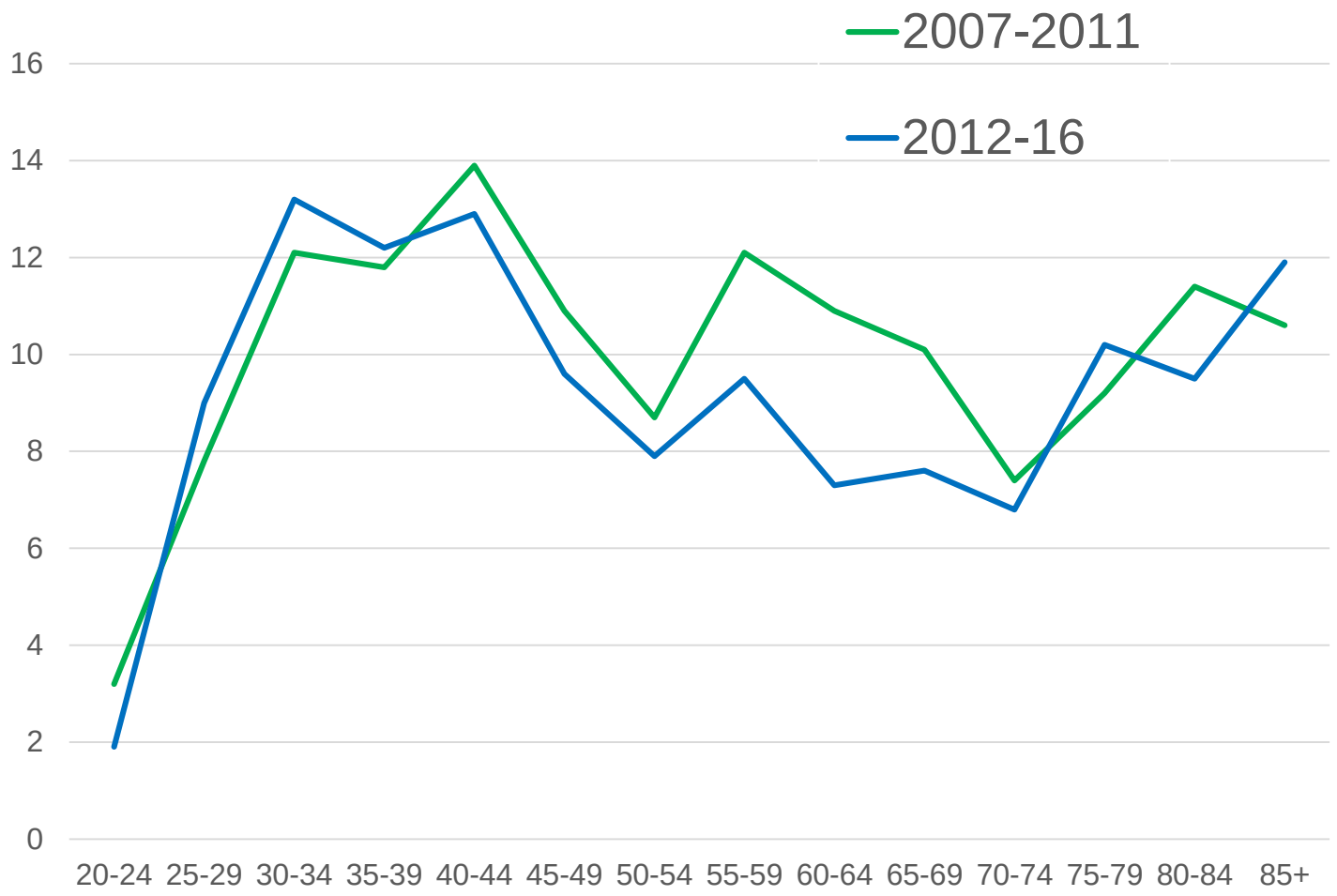


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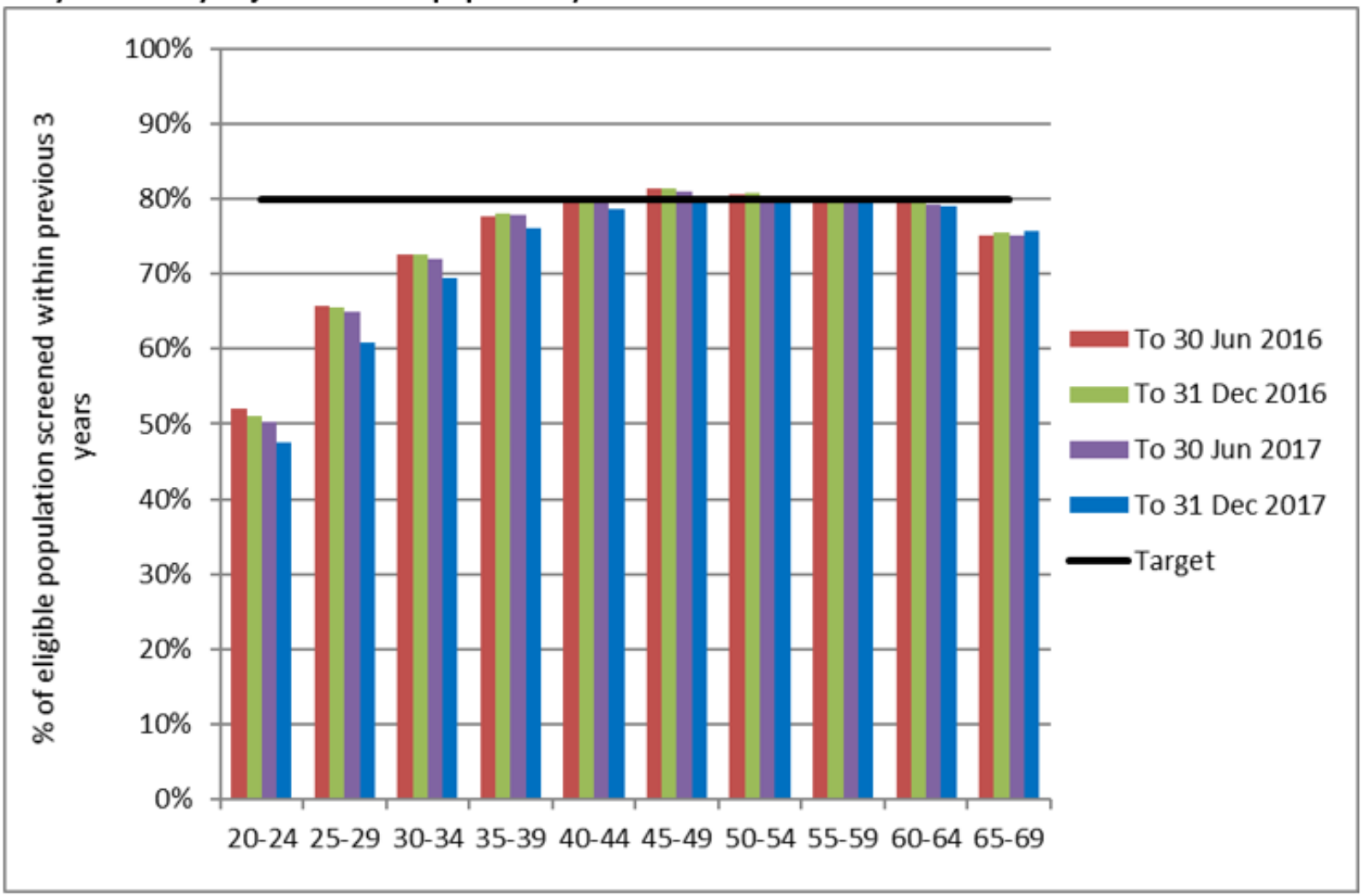
Figure 17 - Trends in three-year coverage by age (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



Note: Coverage calculated using population projection at the date shown based on 2013 Census data. Target 80%. See also Table 34.

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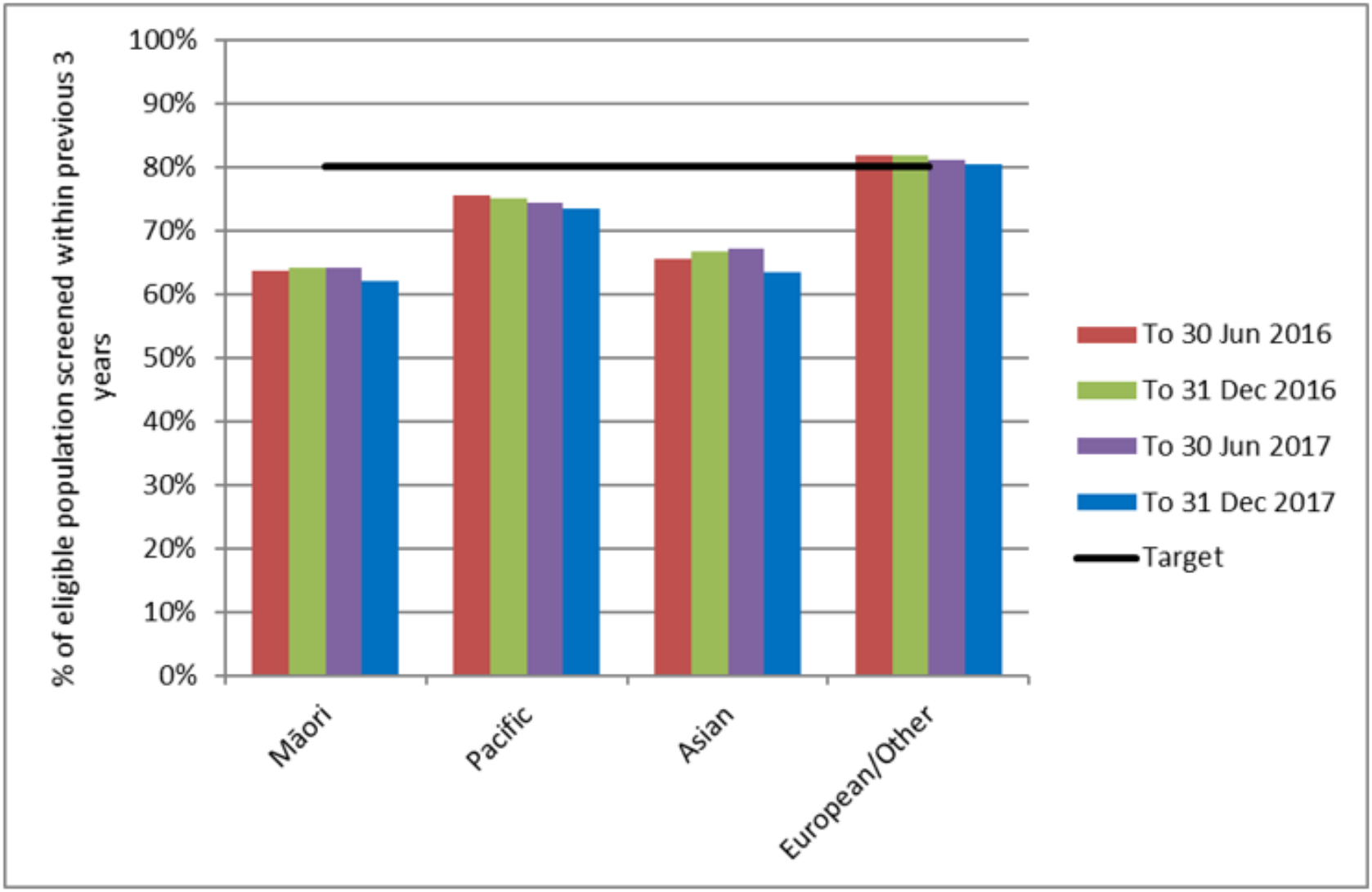
Figure 18 - Trends in three-year coverage by ethnicity (women aged 25-69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



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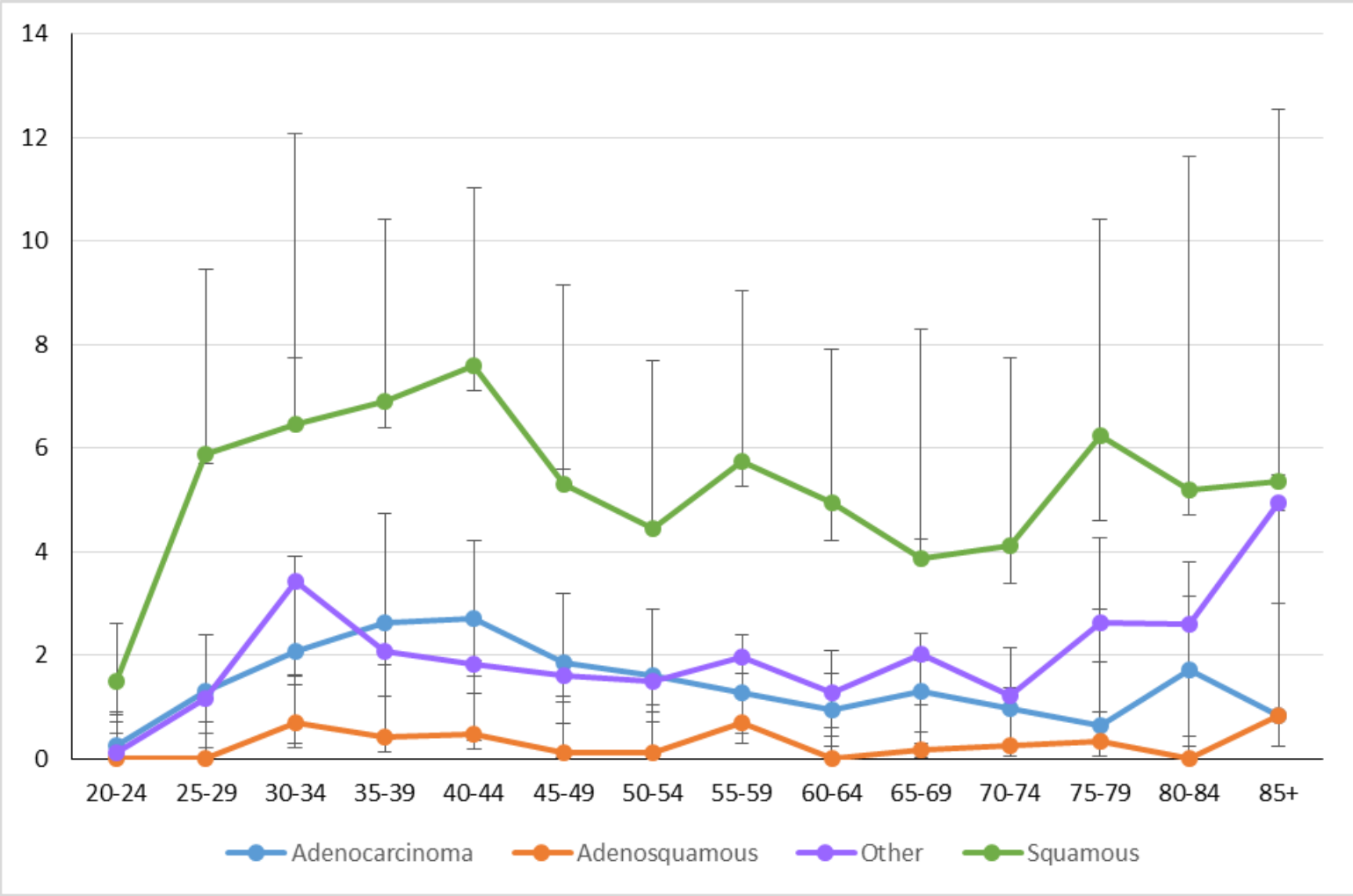
Five-year average cervical cancer incidence rates (2012-2016), by age and histological type



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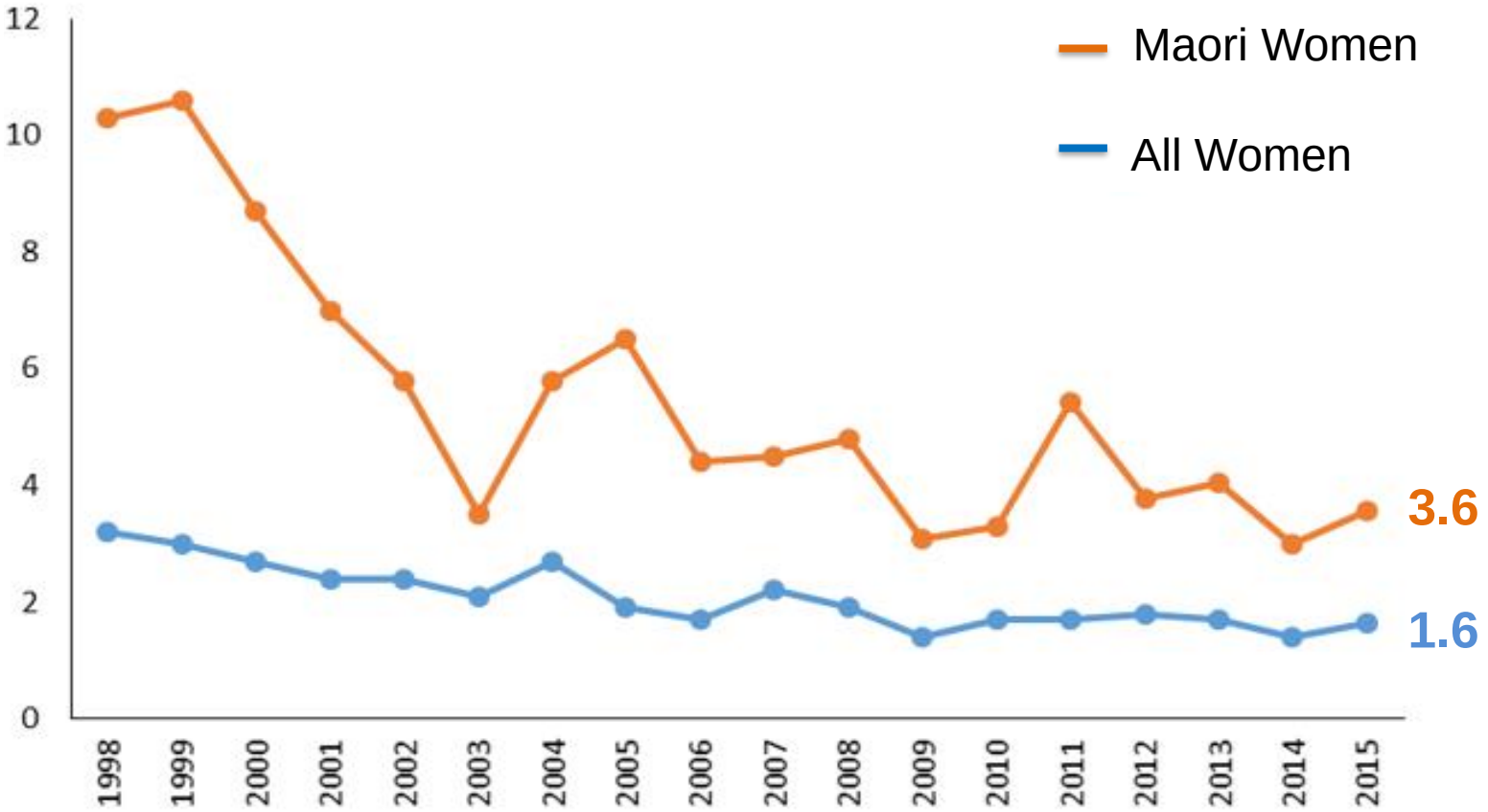
Age-standardised (WHO) cervical cancer mortality rates

Incidence per 100,000 women



53 deaths in 2015

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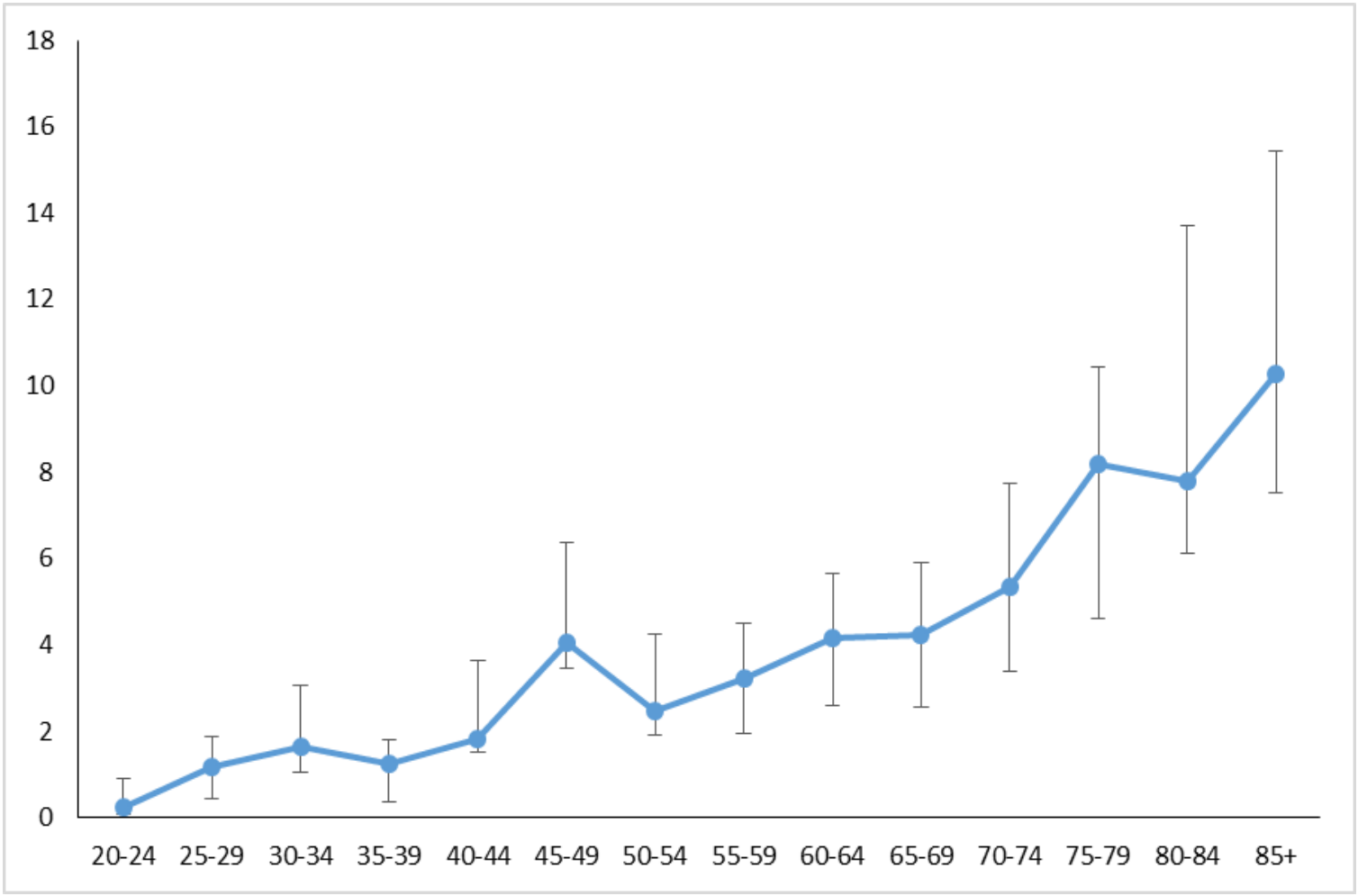
Five-year average cervical cancer mortality rates (2011-2015) by age

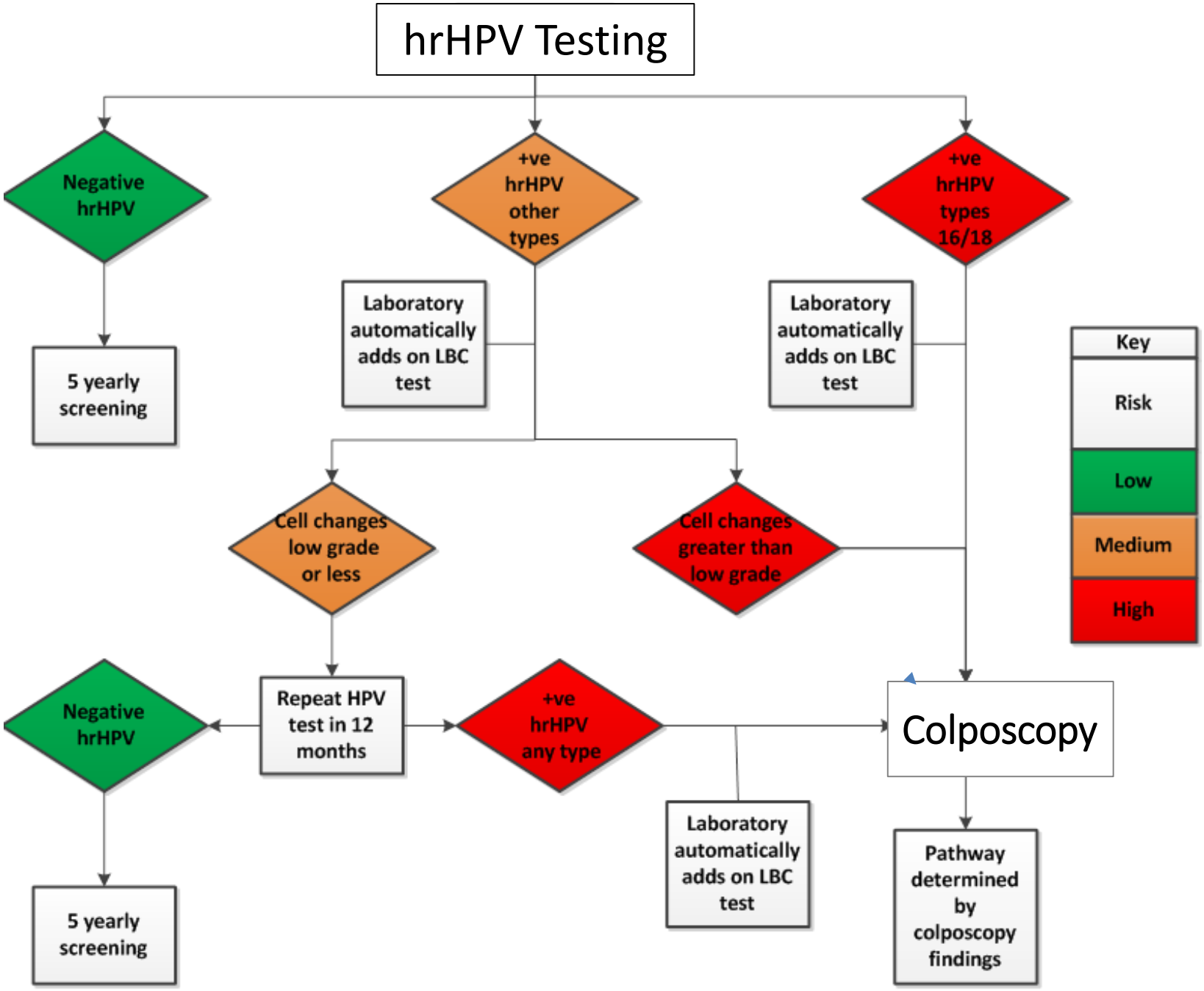


Changing the programme

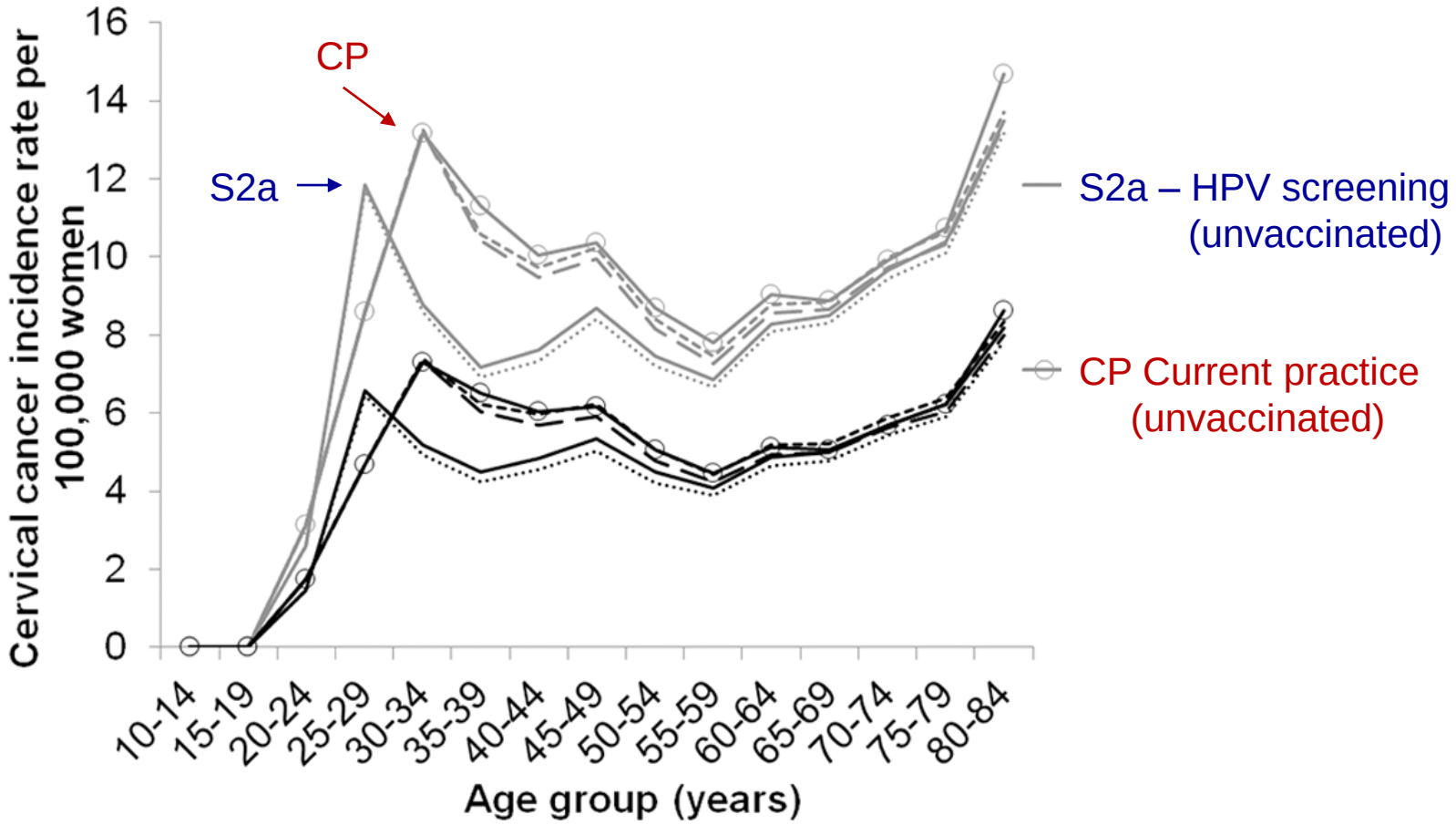
March 2016: Minister of Health announced that the NCSP will move to HPV primary screening with partial genotyping and cytology triage, with screening commencing at 25 years of age

June 2018

1. Implementation of HPV primary screening has been delayed until 2021
2. The recommenced age to commence screening will rise to 25 years in 2019


hrHPV Testing
Negative hrHPV
+ve hrHPV other types
+ve hrHPV types 16/18
5 yearly screening
Laboratory automatically adds on LBC test
Laboratory automatically adds on LBC test
Key
Risk
Low
Medium
High
Cell changes low grade or less
Cell changes greater than low grade
Negative hrHPV
Repeat HPV test in 12 months
+ve hrHPV any type
Colposcopy
5 yearly screening
Laboratory automatically adds on LBC test
Pathway determined by colposcopy findings

Predicted outcomes for the impact on cervical cancer incidence in New Zealand



Lew, J., Simms, K., Smith, M., Lewis, H., Neal, H., Canfell, K.(2016). Effectiveness modelling and economic evaluation of primary HPV screening for cervical cancer prevention in New Zealand. *PloS One*, 11(5), 1-21. ahref="http://dx.doi.org/10.1371/journal.pone.0151619"

Predicted reductions in cervical cancer rates by using HPV testing for primary screening (vaccinated-unvaccinated scenarios)

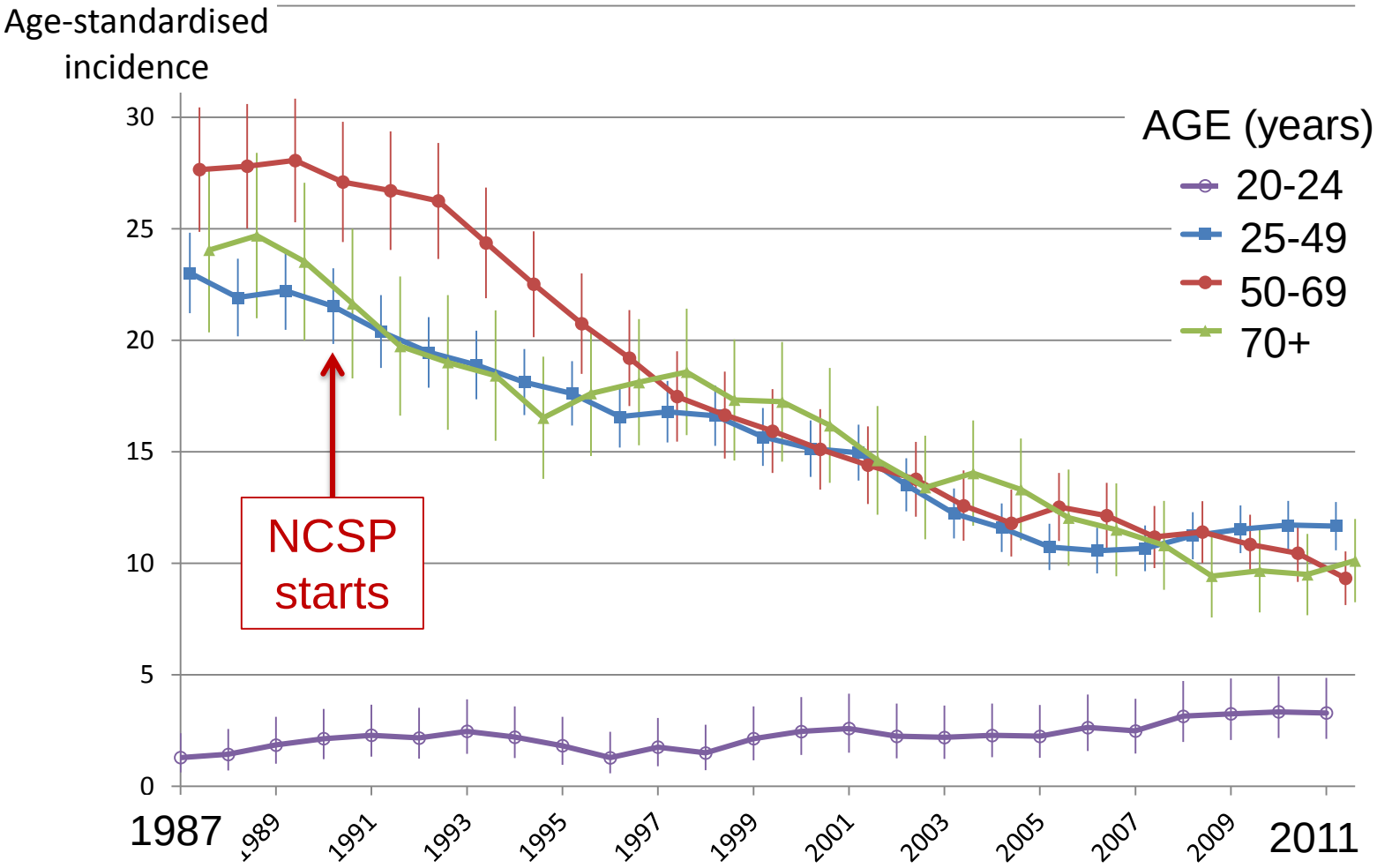
Incidence reduction: 11.7 – 15.7%

Mortality reduction: 11.9 – 16.5%

If 170 new cases annually, HPV screening strategy prevents 20 - 27 cases

If 60 deaths annually, HPV screening strategy prevents 7 – 10 deaths

Five-year average cervical cancer incidence in New Zealand, by age (age-standardised, per 100,000)

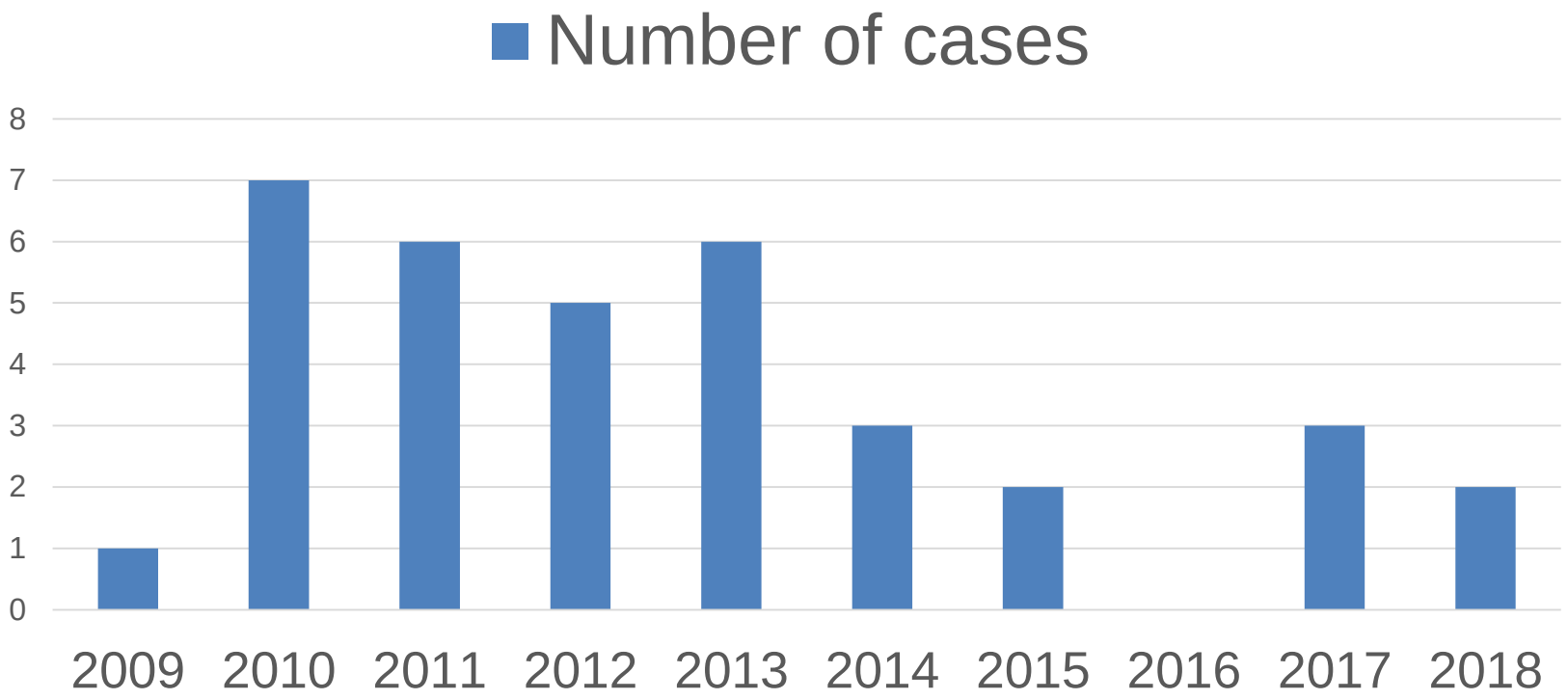


Cancer Council of NSW
A/Prof Karen Canfell, Dr Megan Smith

Invasive cervical cancers under 25 years 2009-18 New Zealand Cancer Registry data

2009-2013: 25 cases

2014-2018: 9 cases (excluding one sarcoma in 2015)



2017 and 2018 data is provisional

The NCSP is raising the recommended age to commence cervical screening to 25 years of age in November 2019

- This will remain cytology-based screening
- Women commencing screening will continue to have two screens 12 months apart before moving to regular three-yearly screening

Recommendations will be:

1. Women who have *not commenced screening*: Start at 25
2. Women who have *already been screened and have had an abnormality*: Continue with current management pathway
3. Women who have *commenced screening and have normal results*: Continue with the current screening pathway

3. Self-Testing (= self-sampling or self-collection)

Self-testing can assist women who are reluctant or unable to be screened currently, to have a cervical screening test. This could result in a significant reduction in cervical cancer rates.

Trials are underway in New Zealand to assess the impact that self-testing could have on improving coverage rates particularly for women of some ethnicities and underscreened women

Robust evidence has established that HPV testing on a self-collected sample is as accurate as a clinician-taken sample as long PCR DNA-based HPV test technology is used.

- Self sampling can not be introduced until we move to primary HPV screening

Type distribution of HPV among adult women diagnosed with invasive cervical cancer (stage 1b or higher) in New Zealand

Peter Sykes, Kusuma Gopala, Ai Ling Tan, Diane Kenwright, Simone Petrich, Arico Molijn, and Jing Chen

BMC Infectious Diseases 2014,14:374

HPV genotyping was performed on cervical tissue for 227 cases of cervical cancer diagnosed 2004 - 2010

HPV was detected in 201 cases (88.5%) with multiple infections present in 11 cases (5.5%).

Red HPV types: Gardasil-9 (191/212 infections)

Green types: HPV Testing covers the red HPV types plus the green HPV types

HPV type	No. of infections
HPV-16	116
HPV-18	47
HPV-31	9
HPV-45	7
HPV-52	7
HPV-59	5
HPV-33	4
HPV-35	3
HPV-39	3
HPV-51	2
HPV-56	3
HPV-66	1
HPV-68	3
Un-identified	2
Low-risk HPV-11, 70	2 (1)