CervicalCheck Programme Report 2016-2017

An tSeirbhís Náisiúnta Scagthástála
National Screening Service

CervicalCheck
AN CLÁR NÁISIÚNTA SCAGTHÁSTÁLA CEIRBHEACS
THE NATIONAL CERVICAL SCREENING PROGRAMME

Women's Charter

CervicalCheck
AN CLÁR NÁISIÚNTA SCAGTHÁSTÁLA CEIRBHEACS
THE NATIONAL CERVICAL SCREENING PROGRAMME

CervicalCheck aims to reduce the incidence of cervical cancer

Screening commitments

- CervicalCheck offers free cervical screening to all women aged 25 to 60 years
- You can choose which registered doctor or nurse to attend
- You may change your choice of doctor or nurse for subsequent CervicalCheck screening
- If you have special needs and require assistance in accessing the programme, CervicalCheck will support you
- Your screening test sample will be sent to an accredited quality assured laboratory
- CervicalCheck will send you a letter when the result of your test is available from your doctor or nurse, usually within four weeks of your screening test
- If the result is normal, you will be invited again when your next screening test is due
- If you are recommended for follow up tests you will also be offered these free of charge
- If you are recommended for further investigation, you will be offered an appointment free of charge at a programme colposcopy clinic, usually within two months
- All members of CervicalCheck staff will respect your privacy, dignity, religion, race and cultural beliefs
- Your screening records will be treated in the strictest confidence in accordance with data protection legislation.

Ways you can help us

- Check that you are registered with CervicalCheck
- Read the information about cervical screening, its benefits and limitations.
  This is important as you will be asked to sign your informed consent to participate in CervicalCheck
- Make your appointment with a registered doctor or nurse when your smear test is due
- Let us know if you require any specific assistance or have any special needs to help you with your screening appointment
- Having your PPS number with you for your appointment helps to identify your record on the cervical screening register
- Let us know if you change your surname or address, or if you are moving to a different country.

You can always tell us what you think

- Your views and opinions are important to us to help us monitor the effectiveness of our services and see if we can improve them.

Freephone: 1800 45 45 55
Email: info@cervicalcheck.ie
Website: www.cervicalcheck.ie

An tSeirbhís Náisiúnta Scagthástála
National Screening Service

Cuid d'Fheidhmeannacht na Seirbhíse Sláinte. Part of the Health Service Executive.

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Message from the Clinical Director, CervicalCheck

As the newly appointed Clinical Director of CervicalCheck, it gives me pleasure to share the 2016-2017 Annual Report for CervicalCheck – The National Cervical Screening Programme.

The National Screening Service manages four screening programmes:

BreastCheck
An Clár Náisiúnta Scagthástála Cioch
The National Breast Screening Programme

CervicalCheck
AN CLÁR NÁISIÚNTA SCAGTHÁSTÁLA CEIRBHEACS
THE NATIONAL CERVICAL SCREENING PROGRAMME

BowelScreen
An Clár Náisiúnta Scagthástála Putóige
The National Bowel Screening Programme

Diabetic RetinaScreen
An Clár Náisiúnta Scagthástála Reitiní do Dhiaibéitigh
The National Diabetic Retinal Screening Programme

September 2016 to August 2017 was a milestone year. More than 282,000 women attended for a cervical screening test, an increase of 10,000 over the previous year. This was the year that 80.2% of the target population was screened, the first time that we exceeded CervicalCheck's key target of 80%.

In 2016-2017, 282,220 women attended for cervical screening tests across all locations of which 261,224 were screened at non-colposcopy settings. This demonstrates the high involvement of primary care professionals in delivering the screening service in the community for women.

I have noted in the report the reference to the CervicalCheck Women's Charter. This includes the commitment that CervicalCheck will send a letter to women when the results of their test are available from their doctor or nurse, usually within four weeks of the screening test. In 2016-2017, letters to women were issued to 64.9% of women screened within four weeks, an improvement on previous years. However within five weeks, 89.5% of women screened had received their letter.

282,220 women attended for a cervical screening test, an increase of 10,000

Quality assured colposcopy service are an essential component of the screening programme and provide diagnosis and treatment. Women who have had cervical screening tests performed as part of the screening programme are referred to colposcopy if they have an abnormal result that warrants referral. In the 2016-2017 period, over 12,000 women (4.6% of the total screened) were referred to colposcopy. More than 97% of women referred to colposcopy with a high grade abnormality got an appointment within four weeks.

CervicalCheck is subject to rigorous quality assurance and quality assurance standards have been available for all elements of the programme. It is clear from this report that all aspects of the programme were performing to a high standard in the 2016-2017 period. It is very important that people understand that regular cervical screening saves lives.

Since CervicalCheck started in 2008, the number of women who developed cervical cancer has fallen by 7% year-on-year between 2010-2015, and over 100,000 cases of abnormal cervical cells have been detected and treated.

However, there are limitations to screening, in that it will not prevent all cases of cervical cancer. Screening will not find every abnormal cell change and some abnormal cell changes may be missed. This is the limitation to all cancer screening programmes not just in Ireland but globally.

We are very grateful to our colleagues in general practice, colposcopy services, laboratories, histopathology, cytology and all those involved in the implementation and support of the CervicalCheck programme, for their dedication, energy and enthusiasm. In future we will see some changes in how we deliver cervical screening in Ireland as we move towards the introduction of HPV Primary Screening in the safest and most appropriate way possible. In the meantime all women who are eligible for cervical screening should continue to attend for screening.

Dr Lorraine Doherty
Clinical Director (Public Health Medicine)
CervicalCheck

From 1 September 2016 to 31 August 2017

80.2%
of target population screened (goal is 80%)

282,220
women attended for a cervical screening test

10,000
the increase in screening tests over previous year

82.8%
screened in 25-49 year age group

12,163
women referred to colposcopy (4.6%)

100%
suspected invasive cancer referred to colposcopy within two weeks

22,673
biopsies performed

18,942
women attended colposcopy for the first time (the highest ever)

Introduction to the statistics 2016-2017

CervicalCheck - The National Cervical Screening Programme – has been in operation since 1 September 2008. The figures presented in this report relate to the ninth year of the programme (1 September 2016 to 31 August 2017). During the reporting period a combination of “invitation / re-call” and “direct entry” was in operation. This means that in addition to the programme sending letters to women to invite them for their first screening test or to remind them that their next test is due, women whose details were on the Cervical Screening Register could check their next cervical screening test due date using an on-line facility on the CervicalCheck website. A separate facility is also available to health professionals for this purpose.

Quality assurance underpins every aspect of the CervicalCheck programme and programme performance is measured against key performance indicators (KPIs) as outlined in the Guidelines for Quality Assurance in Cervical Screening (Second Edition 2013)[1].

Part 1
Cervical screening activity

The data in this section of the programme report 2016-2017 is obtained from the Cervical Screening Register. The response to the programme was very positive in Year 9, with 282,220 women attending for a cervical screening test in all locations (primary and secondary care including colposcopy services) – an increase of over 10,000 on the previous year.

Women between the ages of 25 and 60 are invited for screening, but a small number of women under the age of 25 may attend under specific circumstances. Those women aged 61 or over include women presenting for the first time at this age as well as those who first attended for a cervical screening test before the age of 61 but who did not have a second successive normal result before the age of 61; this second normal result is required to exit the programme.

Table 1 shows the number of women who had a CervicalCheck cervical screening test by age group.

Table 1: Number of women who had a CervicalCheck cervical screening test (all locations including colposcopy) by age group between September 2016 and August 2017

Age group	Number of women who had a cervical screening test	% of women who had a cervical screening test
<25*	626	0.2
25-29	43,640	15.5
30-34	47,080	16.7
35-39	50,666	18.0
40-44	45,483	16.1
45-49	31,261	11.1
50-54	28,436	10.1
55-59	23,519	8.3
60	3,720	1.3
≥61	7,789	2.8
Total	**282,220**	**100**

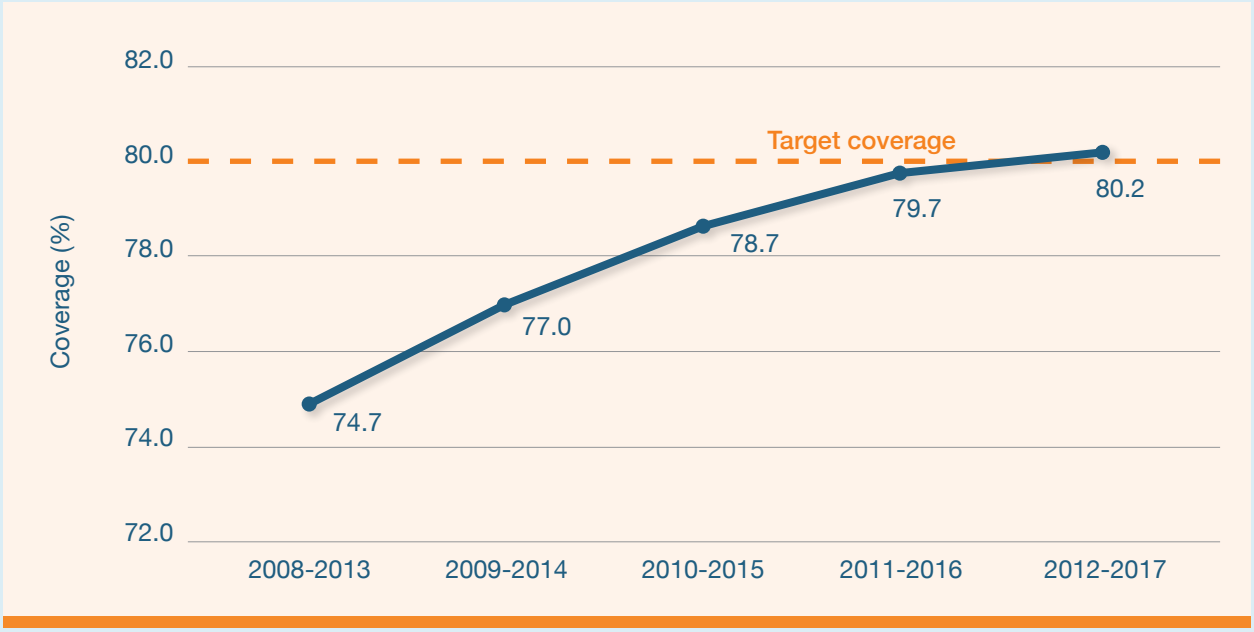
* *Based on international evidence to date, there is no additional public health benefit in starting population screening below the age of 25. Screening in women under the age of 25 may lead to many women receiving unnecessary treatment for lesions that would never have developed into invasive cancer. Certain exemptions apply where some women over the age of 60 and under the age of 25 are considered eligible. Such exemptions may include women of any age who are post-colposcopy, women over the age of 60 who have never had a screening test and women aged 20 and over who are on renal dialysis, have HIV infection, are post organ transplant or who have had a previous abnormal test result and are within the recommended follow-up period.*

There were 261,224 women screened in the period in non-colposcopy settings of which 93.6% were screened in primary care (GP or family planning clinic).

Programme coverage

Coverage, a key performance indicator for the programme, represents the proportion of the target population[1] screened within a period and indicates the effectiveness of the screening programme in reaching the target population. The five-year coverage at the end of the reporting period (31 August 2017) was 80.2%[2]. The programme's goal is 80 per cent coverage over a five-year period and this is the first time the programme has achieved this target. Figure 1 shows the steady rise in coverage since the period 2008 to 2013.

Figure 1: CervicalCheck five-year coverage 2008-2013 to 2012-2017*



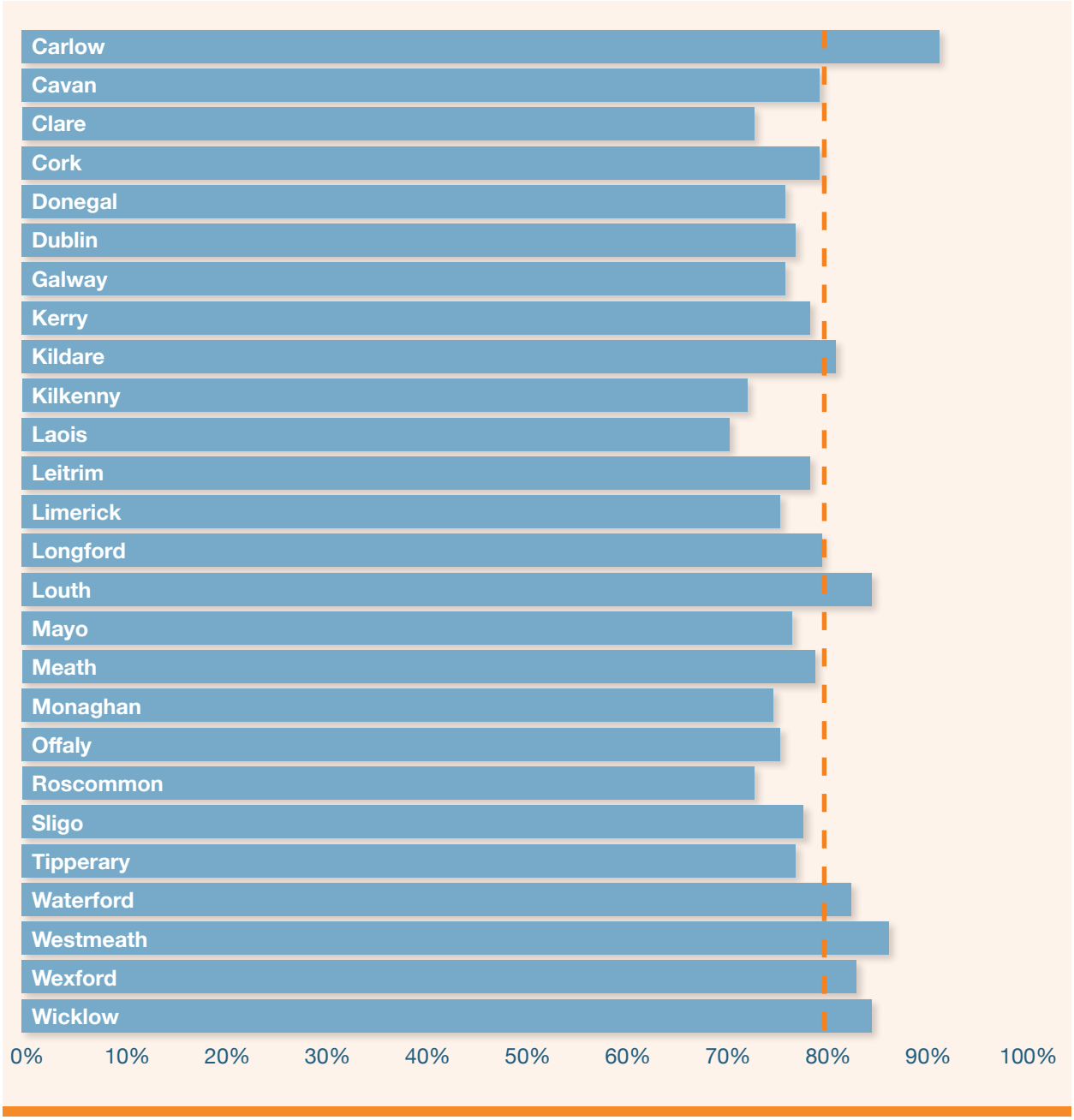
* *adjusted for hysterectomy*

1 Based on national census figures 2011 projected to 2014 (which is the mid-point year of the 5-year screening round). Coverage is measured by five-year screening round.

2 This national figure is adjusted for those women who have had a total hysterectomy with complete removal of the cervix and therefore do not form part of the target population for cervical screening.

An indicative geographical spread of screening coverage by county is shown in Figures 2 and 3. The coverage calculations are based on population estimates from census 2011 counts rolled forward to 2014 (as detailed above), and do not take into account estimates of emigration, immigration, hysterectomy or deaths. Eight counties achieved the target of 80 per cent coverage over the five-year period and one of those counties (Carlow) achieved higher than 90 per cent during this time. Four counties had coverage between 70 and 75 per cent.

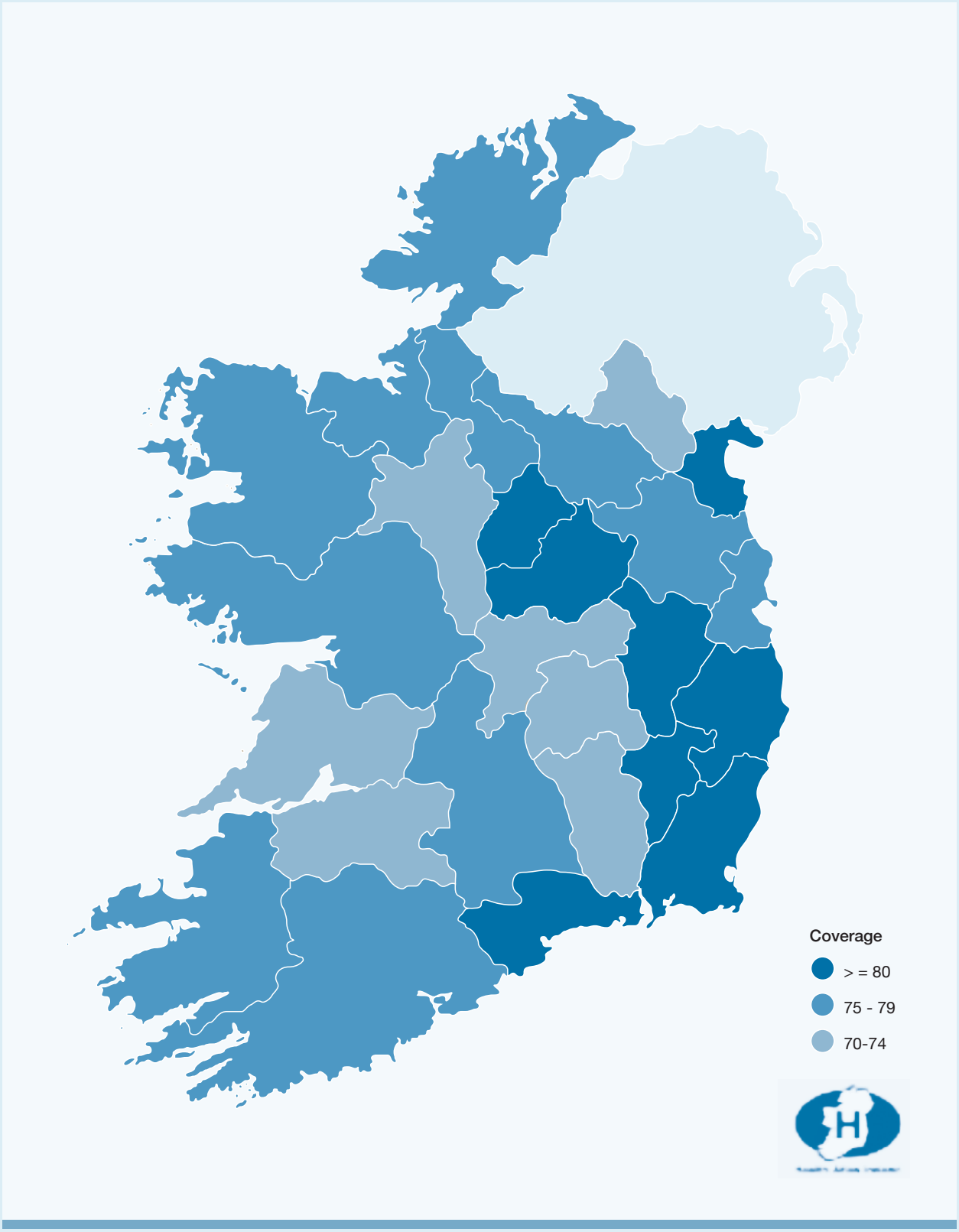
Figure 2: Five-year coverage (%) based on county of residence on the cervical screening register* for period ending 31 August 2017



The dotted line refers to the CervicalCheck's target of 80 per cent coverage over the five-year period.

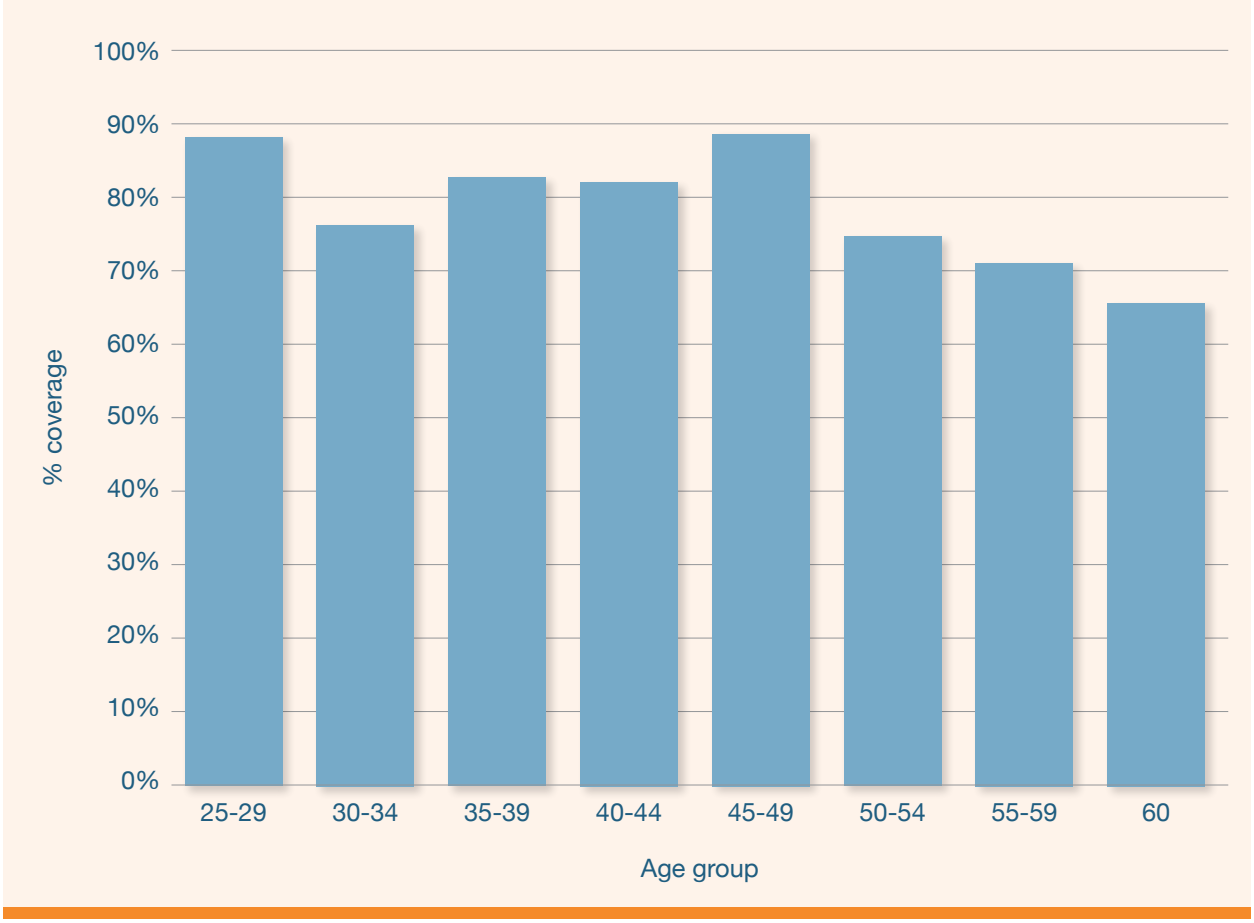
* *Population based on CSO 2011[3] figures projected to 2014, not adjusted for hysterectomy (hysterectomy data is not available by geographic location)*

Figure 3: Five-year coverage (%) based on county of residence on the cervical screening register* for period ending 31 August 2017



* *Population based on CSO 2011[3] figures projected to 2014, not adjusted for hysterectomy (hysterectomy data is not available for geographic location)*

Figure 4: Five-year coverage of eligible women by age group on the cervical screening register* for period ending 31 August 2017



**Population based on CSO 2011[3] projected to 2014, adjusted for hysterectomy*

Figure 4 demonstrates five-year coverage by age group for the period 1 September 2012 to 31 August 2017. A consistent pattern has been evident since the beginning of the programme with younger women more likely to have participated in cervical screening (82.8 per cent of women aged 25-49 years screened compared to 72.2 per cent of women in the 50-60 year old group), although coverage in the older age cohorts continues to improve. Women who are known to have had a total hysterectomy are excluded from the target population.

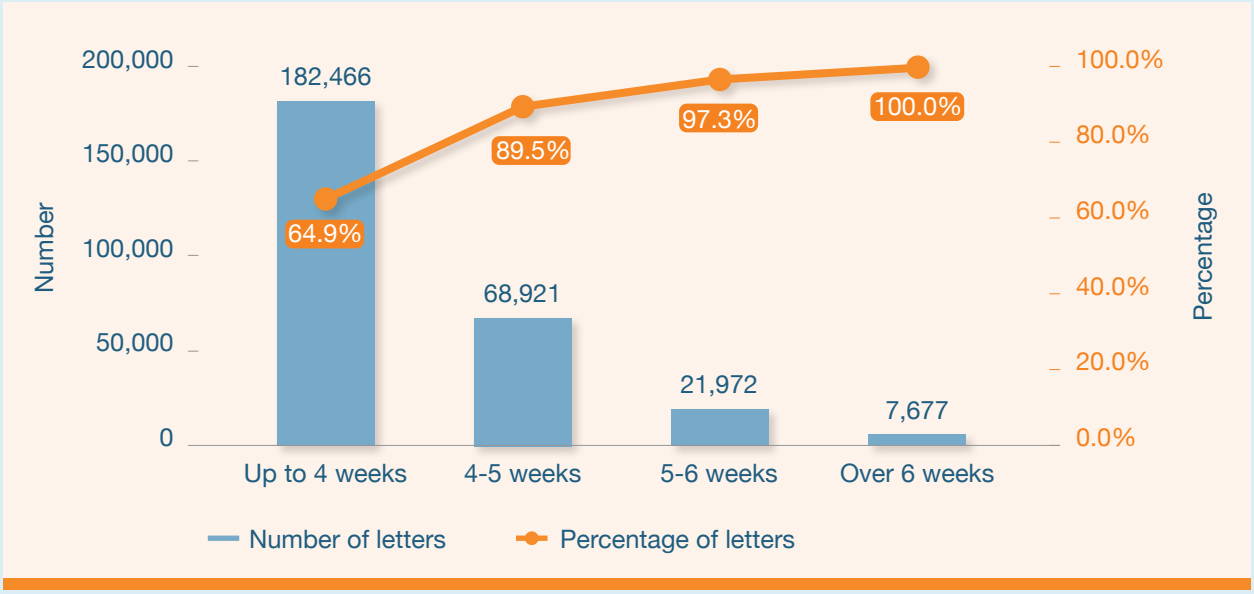
Notification of results

The CervicalCheck Women's Charter includes the commitment that *"CervicalCheck will send you a letter when the result of your test is available from your doctor or nurse, usually within four weeks of your screening test".* Table 2 illustrates the performance of the programme in issuing letters advising of the availability of test results, with an improvement from 40% in the first year to 64.9% in the ninth year of the programme. The letter to the woman was issued within five weeks in 89.5 per cent of cases (Table 2 & Figure 5).

Table 2: Percentage of letters advising results available sent within four to six weeks of cervical screening test date from 1 September 2016 to 31 August 2017

Time from cervical screening test to letter printed date	2016/2017	Target
Within 4 weeks	64.9%	>90%
Within 5 weeks	89.5%	

Figure 5: Time in weeks for the letter to be issued by the programme (%) from 1 September 2016 to 31 August 2017



Cytology and HPV testing

Laboratory turnaround time

It is important that laboratory services process cervical screening tests within 10 working days of receipt of the sample to facilitate the timely provision of results to doctors and women following their cervical screening test. This is a patient quality measure for the programme and impacts on the experience women have of the service. It does not affect the accuracy of the result.

A laboratory turnaround time of less than 10 working days in 95 per cent of cases is a programme standard. In this reporting year 80.1 per cent of results were received by the programme within ten working days of the receipt of the sample being notified by the laboratory, which falls below the programme target (Table 3). The proportion of results returned within 15 working days of receipt of the sample at the laboratory in the year was 97 per cent.

Table 3: Laboratory turnaround time - time from notification of receipt of sample to the programme to results returned to the programme

Performance parameter	2016/2017	Target
% results returned within ten working days of receipt of sample at laboratory.	80.1%	>95%

Cytology findings

Cytology findings reported in Tables 4 and 5 below are based on test results taken outside colposcopy received by the programme in the period 1 September 2016 to 31 August 2017, rather than the date on which the test was taken. Of the 271,034 tests examined a small number were 'unsatisfactory' (1.7%) (Table 4). This means that the laboratory could not give a result for the sample. This can be due to a number of reasons, including not enough cells to assess, and is determined by the scientists at the laboratory.

The rate of unsatisfactory tests by smear-taker is monitored. Age of the sample (within 1 month) does not generally affect whether it is suitable, however HPV testing should be done within 30 days if required, so smears should be processed within at least this timeframe.

Table 4: Cytology findings for test results (tests taken outside colposcopy) received by the Programme from 1 September 2016 to 31 August 2017

Laboratory	Total number of tests taken outside colposcopy reported in Year 9	Cytology findings			
		Unsatisfactory/ inadequate tests		Satisfactory/ adequate tests	
	N	N	%	N	%
Quest	133,951	1,097	0.8%	132,854	**99.2%**
Med Lab Pathology	118,551	2,907	2.5%	115,644	**97.5%**
Coombe	18,532	578	3.1%	17,954	**96.9%**
Total	**271,034**	**4,582**	**1.7%**	**266,452**	**98.3%**

The outcomes of the 266,452 satisfactory tests taken outside of colposcopy are reported in Table 5. In total, 93.3 per cent of satisfactory test results were found to be negative (normal).

Of the remainder 5.6 per cent showed low-grade abnormalities (ASCUS, LSIL, AGC (borderline glandular)) and 1.1 per cent showed high-grade abnormalities (ASC-H, HSIL (moderate or severe), query invasive squamous carcinoma, AGC favour neoplasia or query glandular neoplasia).

Table 5: Cytology outcomes for satisfactory smear tests taken outside colposcopy from 01 September 2016 to 31 August 2017

Cytology results	2016/2017	
	N	**%**
Negative/normal	248,601	**93.3%**
Low Grade		
ASCUS	8,295	**3.1%**
AGC (borderline granular)	221	**0.1%**
LSIL	6,401	**2.4%**
High Grade		
ASC-H	842	**0.3%**
HSIL (moderate)	889	**0.3%**
HSIL (severe)	1,083	**0.4%**
Query invasive squamous carcinoma	35	**0.01%**
AGC favour neoplasia	22	**0.01%**
Query glandular neoplasia / (AIS) / adenocarcinoma	63	**0.01%**
Total	**266,452**	**100.0%**

Glossary of the Above Terms

AGC Atypical Glandular Cells

AIS Adenocarcinoma in Situ. A pre-cancer affecting the cervix, but involving the columnar (endocervical) cells rather than the squamous cells

ASC-H Atypical Squamous Cells for which a high-grade lesion cannot be excluded.

ASCUS Atypical Squamous Cells of Undetermined Significance

HSIL High Grade Squamous Intraepithelial (moderate and severe) Lesion encompassing moderate (CIN 2) and severe dysplasia (CIN 3/Carcinoma in Situ).

LSIL Low Grade Squamous Intraepithelial Lesion encompassing HPV infection or mild dysplasia (CIN 1)

HPV testing (triage) outcomes

HPV testing has been used in colposcopy services since 2012 as a risk assessment tool for women who are post-treatment as well as women with persistent low-grade abnormalities). In May 2015, CervicalCheck introduced HPV reflex testing (triage) in order to identify women with low-grade cytological abnormalities who have a higher risk of precancerous change and who would benefit from immediate referral to colposcopy. The aim is to enhance the early detection and treatment of these abnormalities while reducing unnecessary interventions especially for younger women.

The cervical screening test was performed in the usual manner. Programme laboratories carried out an HPV test on samples with a low grade result (reflex test). Women who were HPV positive for one or more 14 high-risk types were referred to colposcopy, while women with negative HPV test results were routinely recalled (Table 6).

Table 6: HPV test results of reflex tests for low-grade cytology (all locations excluding colposcopy) from 1 September 2016 to 31 August 2017

HPV test results	ASCUS		LSIL		Total	Recommended outcome
	N	%	N	%	N	
HPV detected	2,769	35.7	4,170	70.4	**6,939**	**Refer to colposcopy**
HPV not detected	4,975	64.2	1,745	29.5	**6,720**	**Routine screening**
Unknown	8	0.1	7	0.1	**15**	**Refer to colposcopy**
Total	**7,752**	**100.0**	**5,922**	**100.0**	**13,674**	

In the current year, following HPV triage the number of women who were referred to colposcopy was 6,954, and the number recommended routine screening was 6,720.

Referral to colposcopy

Cytology results of cervical screening tests performed on women outside colposcopy services are accompanied by a recommendation of referral to colposcopy for a) high-grade cytological abnormalities, b) low-grade cytological abnormalities with HPV detected, and c) persistent unsatisfactory results. During the year under review, of the cervical screening tests performed on women outside colposcopy clinics 12,163 (4.6%) resulted in a referral to colposcopy.

Part 2
Diagnosis and treatment

Quality assured colposcopy services with timely diagnosis and treatment are an important component of successful cervical screening programmes. Fifteen colposcopy services nationwide work effectively with the programme. Each has agreed a service plan delivered by dedicated multidisciplinary teams. Information is collected electronically and a central data extraction performed. These data form the basis for this section of the report.

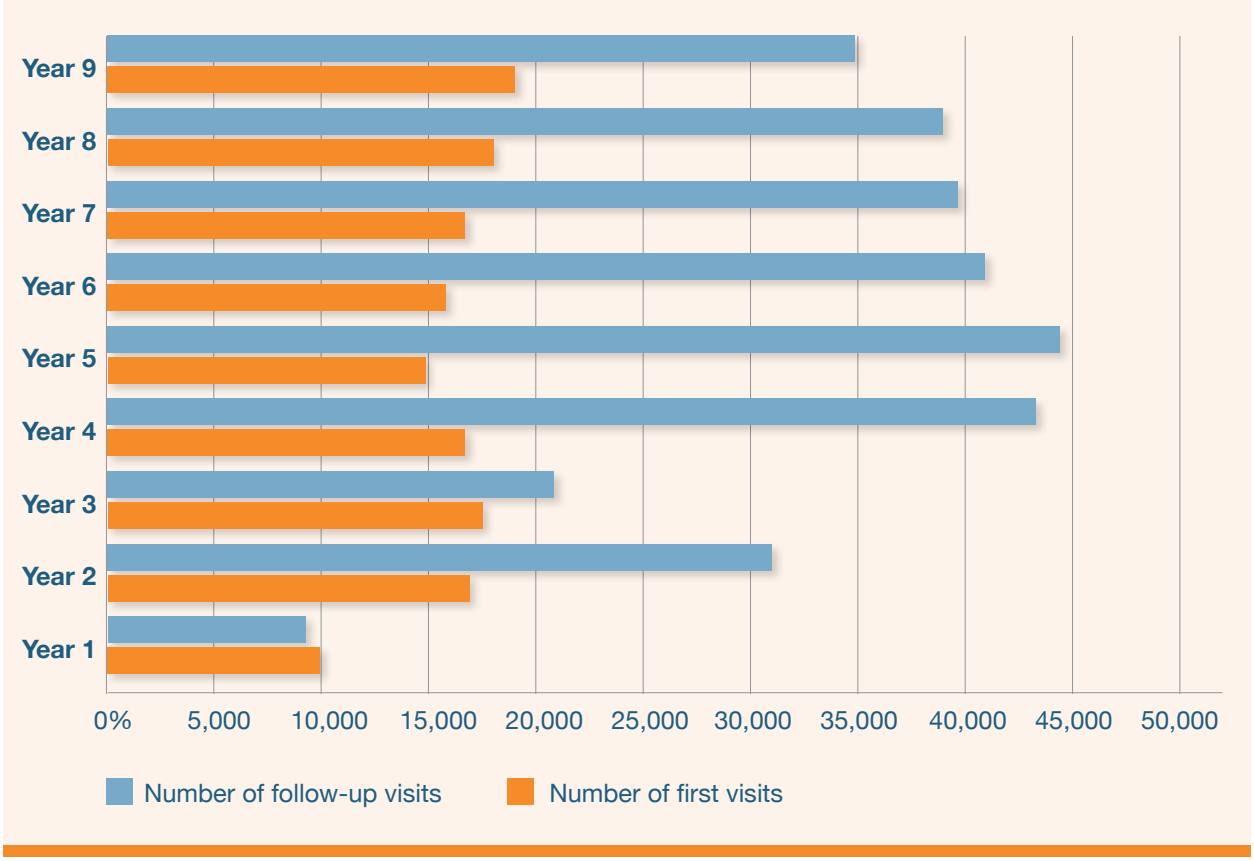
Table 7: Outcome of appointments at colposcopy clinics from 1 September 2016 to 31 August 2017

	First visits		Follow-up visits		Total	
	N	%	N	%	N	%
Attended	18,942	71.0	34,737	59.5	53,679	63.1
Cancelled	5,681	21.3	16,476	28.2	22,157	26.0
Did Not Attend (DNA)	2,064	7.7	7,164	12.3	9,228	10.8
Missing	0	0	17	0.0	17	0.0
Total	**26,687**	**100**	**58,394**	**100**	**85,081**	**100**

During the year, 18,942 women attended colposcopy for the first time, representing an increase when compared to the previous year and the largest number since the start of the programme (Table 7 and Figure 6). This increase was expected and reflects a change in practice whereby women with low grade abnormalities have a reflex HPV test and if positive, are referred directly to colposcopy. By contrast, the number of follow-up visits continues to reduce (Figure 6) through increased use of HPV testing in combination with cytology to identify women in colposcopy who are at low risk of high-grade CIN and who are suitable for discharge.

It is important to note the number of women referred and the number of new referrals attended will not be the same in any given time period. This is because of the lead time between the colposcopy referral and the date of the first colposcopy visit as well as additional referrals for clinical reasons.

Figure 6: Attendance at colposcopy services from 1 September 2008 to 31 August 2017



Of the 18,942 new attendances at colposcopy, information on the age of the woman was available for 18,926 (99.9 per cent). The mean age at referral was 36.0 years. The majority of women (85.1 per cent) were aged between 25 to 49 years with 3.3 per cent under 25 years of age and 11.7 per cent aged 50 or over.

The Guidelines for Quality Assurance in Cervical Screening states that the rate of defaulted appointments, where no prior notice was given (DNA), should be kept to a minimum. This target was amended from below 15 per cent to below 10 per cent in 2013.[2] The recorded rate for the ninth year of the programme was 10.8 per cent (Table 8). While this met the previous target, it will be a focus of continued efforts to achieve the new target with continued improvements to appointment reminder systems in colposcopy services.

Table 8: Attendance at colposcopy services

Performance parameter	2016/2017	Target
The percentage of women who do not attend and who do not notify the clinic should be maintained at a low level to maximise the efficiency of the clinic and to avoid the loss of women to follow-up	10.8%	<10%

The rate of DNA appointments is presented in Table 9 according to type of visit and age-group. The DNA rate is higher for return visits than for first visits, possibly reflecting the fact that these appointments are made up to one year in advance of the attendance date. Text reminders for appointments are currently used by a number of colposcopy services, though not yet by all. Where they are in use, they have generally been judged effective as one measure to address DNA rates. As in previous years, younger women were more likely to default than older women.

Table 9: DNA rates for colposcopy appointments offered to women by age group

Age in years at first offered appointment	Number of first appointments	First visit DNA rate (%)	Number of follow-up appointments	Follow-up visit DNA rate (%)
<25	835	9.0	1,826	**16.9**
25 – 29	8,418	8.5	21,188	**13.3**
30 – 34	5,348	9.0	13,043	**12.6**
35 – 39	4,107	7.8	8,413	**12.3**
40 – 44	3,050	7.2	5,692	**10.5**
45 – 49	2,108	5.6	3,481	**10.3**
50 – 54	1,286	5.0	2,180	**8.9**
55 – 59	909	3.6	1,459	**9.1**
60	129	7.8	194	**5.7**
61+	587	4.3	919	**8.3**
Total	**26,777**	**7.7**	**58,395**	**12.3**

22,673
biopsies were performed

Reasons for referral

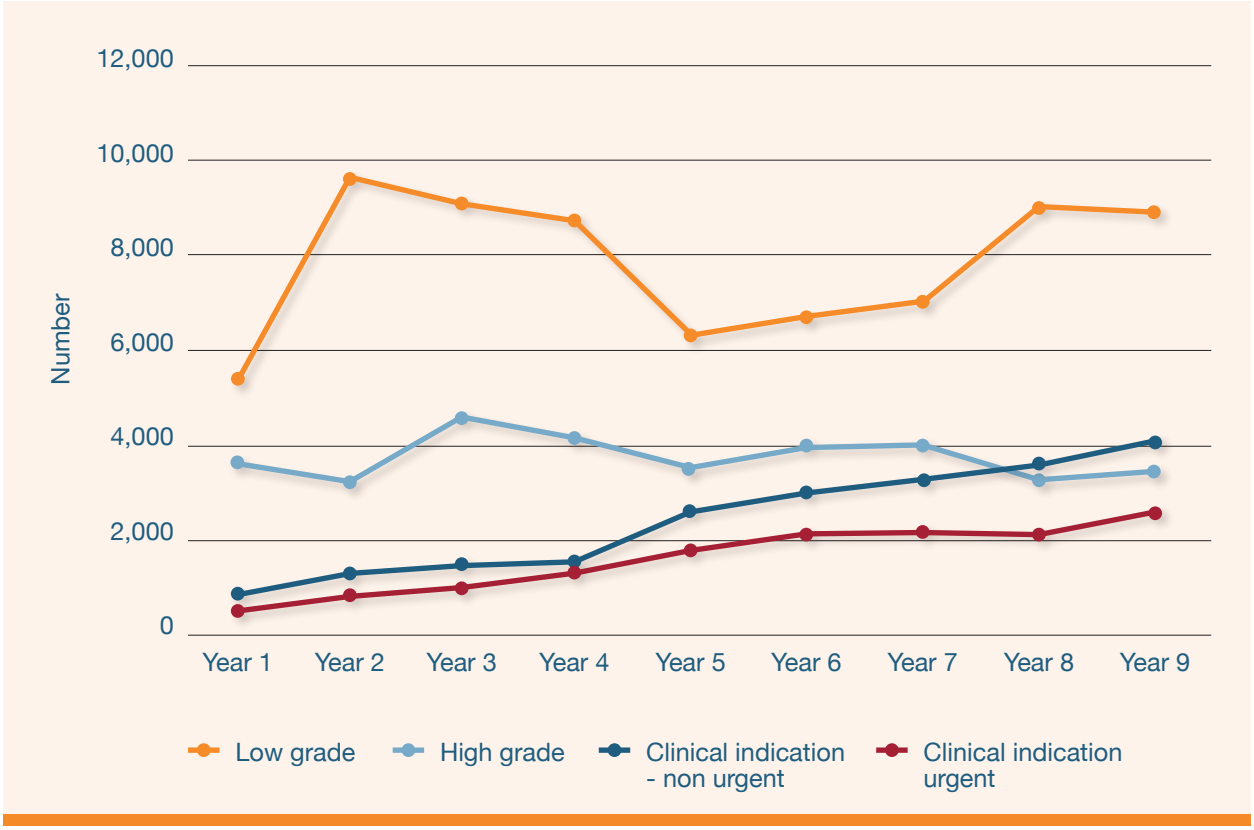
Women were referred to colposcopy either on the basis of an abnormal screening test result or for clinical reasons, such as abnormal vaginal bleeding or suspicion of an anatomical abnormality of the cervix (Table 10). This table excludes 27 women (0.2 per cent) for whom no consent information was recorded.

The reasons for referral to colposcopy for 18,919 of the 18,942 new referrals are presented in Table 10 below. Just under two thirds of women were referred on the basis of an abnormal cervical screening test result and 35.0 per cent were referred for clinical reasons. This relative increase since Year 8 in clinical referrals (women with anatomical abnormalities of the cervix or those with intermenstrual or post coital bleeding) represents the utilisation of capacity in colposcopy services to facilitate the inclusion of some women who previously would have been seen in outpatient gynaecology services (Figure 7).

Table 10: Reason for referral to colposcopy from 1 September 2016 to 31 August 2017

New referrals		
Reason for referral to colposcopy	**N**	**%**
Abnormal Screening Test	12,296	65.0
Clinical Indication - non urgent	4,026	21.3
Clinical Indication - urgent	2,597	13.7
Total	**18,919**	**100**

Figure 7: Reason for referral for women attending colposcopy services from 1 September 2008 to 31 August 2017



Of the 12,296 women who attended for the first time with an abnormal screening test result, 3,434 (27.9 per cent) were referred following detection of a high-grade abnormality (Table 11). The detection of a low grade abnormality (LSIL or ASCUS) was the reason for referral of 8,862 (72.1 per cent) women and cytology tests showing AGC (atypical glandular cells) was the reason for referral in 277 cases (2.0 per cent). The relative increase in referral for women with a low grade abnormality reflects the introduction of HPV testing to triage women for colposcopy. The number of women referred with persistently unsatisfactory or inadequate results (0.6 per cent) remained consistently low.

Table 11: Reason for referral to colposcopy as a result of an abnormal screening test result from 1 September 2016 to 31 August 2017

New referrals		
Referral screening abnormality	**N**	**%**
Unsatisfactory/inadequate	74	0.6
Low Grade		
ASCUS	3,412	27.8
AGC	277	2.3
LSIL	5,223	42.5
High Grade		
ASC-H	963	7.8
HSIL (moderate)	991	8.1
HSIL (severe)	1,255	10.2
Query invasive squamous carcinoma	24	0.2
Query glandular neoplasia / AIS / adenocarcinoma	76	0.6
Total	**12,296**	**100**

18,942
women attended colposcopy for the first time (the highest ever)

Waiting times for appointments

One of the key challenges faced by CervicalCheck has been the provision of access to colposcopy in a timely fashion for women. For the period 1 September 2016 to 31 August 2017, information on waiting times was available for 18,918 of the 18,942 new attendances. For women referred to colposcopy with a high grade abnormality, 97.4 per cent were offered an appointment within four weeks (Table 12). Overall, 2.2 per cent of women experienced waiting times of longer than eight weeks (Table 13).

Table 12: Waiting times for colposcopy services 2016 to 2017

Performance parameter	2016/2017	Target
All women referred to colposcopy should be offered an appointment within 8 weeks of the date the letter was received at the clinic	96.5%	> 90%
Women referred to colposcopy with a screening test result suggestive of CIN 2 or CIN 3 should be offered an appointment within 4 weeks of receipt of referral at the clinic	97.4%	> 90%
Women referred to colposcopy with clinical suspicion of invasive cancer should be offered an appointment within 2 weeks of receipt of referral at the clinic	100.0%	> 90%
All women referred to colposcopy with a screening test result suggestive of glandular neoplasia or AIS should be offered an appointment within 4 weeks of the date the letter was received at the clinic	100.0%	> 90%

Table 13: Waiting times for women referred to colposcopy grouped by grade of referral cytological abnormality

	High grade*		Low grade**		Total	
	N	%	N	%	N	%
2 weeks or less	1,704	49.6	1,858	21.0	3,562	29.0
Between 2 and 4 weeks	1,634	47.6	2,633	29.7	4,267	34.7
Between 4 and 8 weeks	75	2.2	4,114	46.4	4,189	34.1
Between 8 and 12 weeks	5	0.1	207	2.3	212	1.7
Greater than 12 weeks	15	0.4	49	0.6	64	0.5
Total	**3,433**	**100**	**8,861**	**100**	**12,294**	**100**

**Includes ASC-H, AIS, HSIL, and Query invasive carcinoma*

***Includes ASCUS, LSIL and AGC (Borderline glandular)*

Biopsy rate

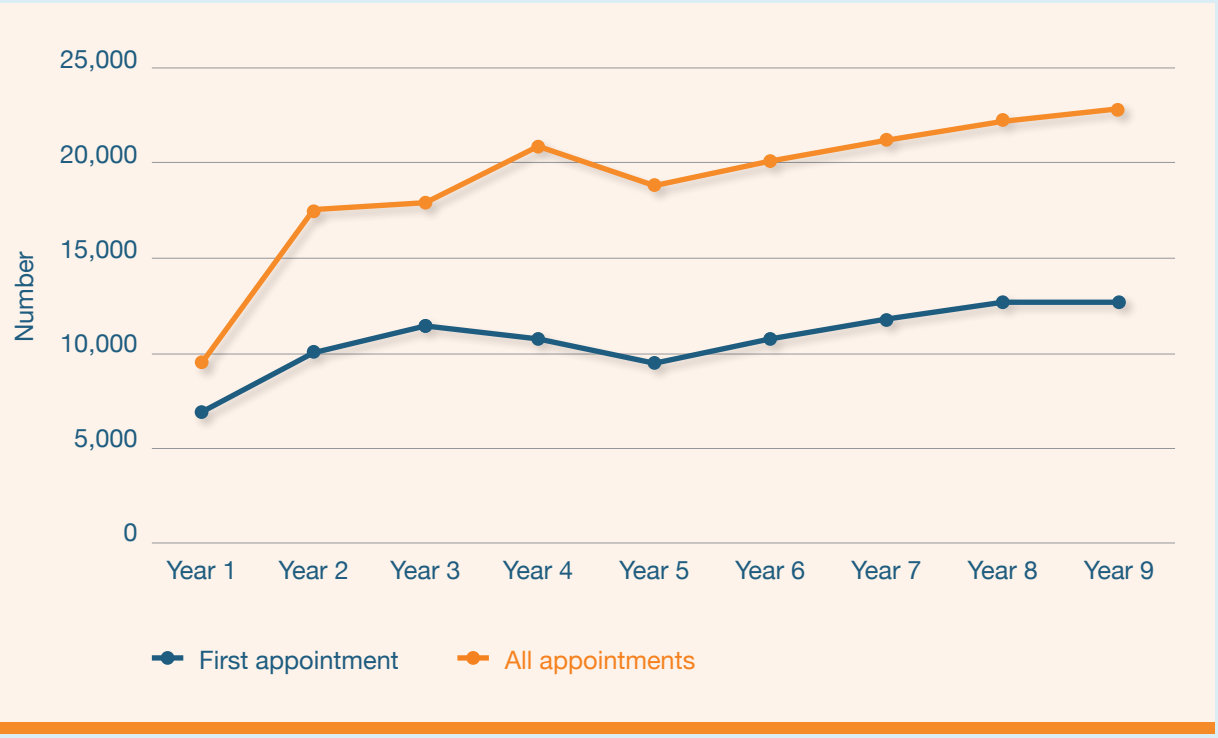
Colposcopy plays a key role in the diagnosis and treatment of women with abnormal screening test results. Where an abnormality is suspected at colposcopy, it is good practice to perform a biopsy to confirm the diagnosis. There are two main types of biopsy performed – a diagnostic biopsy, which involves sampling a portion of the abnormal area only, and an excisional biopsy which removes the abnormal area in its entirety.

During the reporting period, 22,673 biopsies were performed which comprised of 16,824 diagnostic biopsies and 5,849 excisional biopsies (Figure 8). The initial colposcopy visit determines the presence or absence of an atypical Transformation Zone (TZ) for women referred with an abnormal screening test result. This is the area of the cervix which is most prone to abnormal cell changes. A biopsy was performed in 95 per cent of cases where the TZ was documented as atypical or abnormal. A biopsy was performed in all cases where an invasive cancer was suspected (Table 14).

Table 14: Biopsy rates measured against colposcopy standards

Performance parameter	2016/2017	Target
A biopsy should be performed in the presence of an atypical Transformation Zone	95.1%	>90%
If there is a suspicion of invasive disease a biopsy must be performed immediately	100.0%	>90%

Figure 8: Number of women undergoing biopsy at colposcopy services from 1 September 2008 to 31 August 2017



The rate of biopsy at the first visit varied with the grade of cytological abnormality. Just under 88 per cent of women presenting with a high grade cytological abnormality had a biopsy performed at the first visit compared with 72.9 per cent of women presenting with a low grade cytological abnormality. Just over 61 per cent of women presenting with AGC (borderline glandular cells) had a biopsy at the first visit which included an excisional biopsy in 5.2 per cent of cases.

The biopsy rates according to the grade of the referral cytological abnormality and reasons for referral are presented in Table 15.

Table 15: Biopsies performed during the first visit to colposcopy according to referral screening test result grade from 1 September 2016 to 31 August 2017

Type of biopsy performed								
	Excisional biopsy		Diagnostic biopsy		No biopsy taken		Total	
Grade of cytology result of referral screening test	N	%	N	%	N	%	N	%
AGC	8	5.2	86	56.2	59	38.6	153	100
High Grade	785	22.9	2,228	64.9	420	12.2	3,433	100
Low Grade	235	2.7	6,061	70.2	2,339	27.1	8,635	100
Unsatisfactory / inadequate	1	1.4	14	18.9	59	79.7	75	100
Total	**1,029**	**8.4**	**8,389**	**68.2**	**2,877**	**23.4**	**12,296**	**100**

Treatment at colposcopy

Effective treatment of high grade CIN and Adenocarcinoma in situ (AIS) with subsequent reduction of the risk of invasive cancer is vital to the success of any cervical screening programme. Treatments should be performed safely and be acceptable to women and should aim to eradicate all CIN from the cervix.

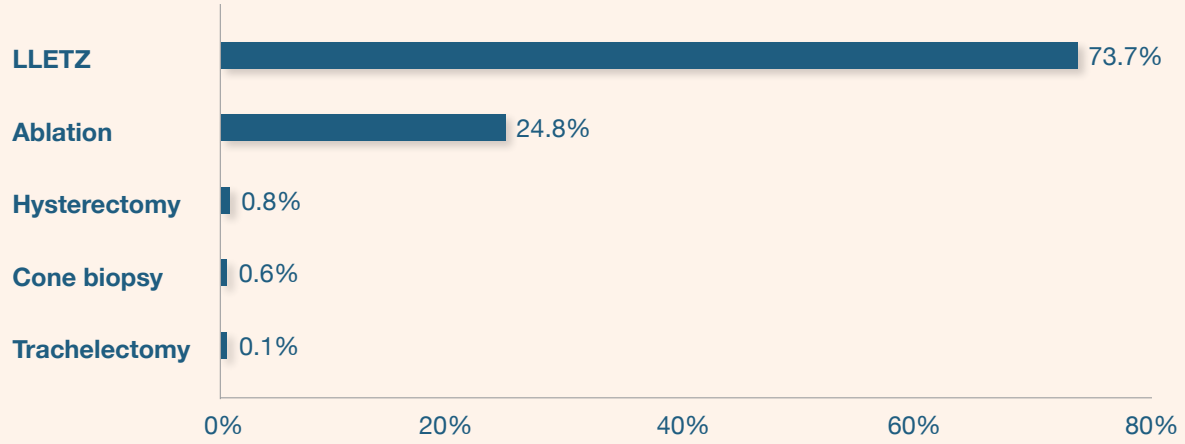
CervicalCheck programme standards state that treatments are performed as outpatient procedures under local anaesthetic at least 90 per cent of the time. During the ninth year of the programme, outpatient treatments using local anaesthetic occurred 98.6 per cent of the time, surpassing this target (Table 16).

Table 16: The use of local anaesthetic

Performance parameter	2016/2017	Target
The majority of women should have treatment performed as an outpatient under local anaesthetic	98.6%	≥90%

During the reporting period, 7,324 treatments were recorded at colposcopy. Large Loop Excision of the Transformation Zone (LLETZ) was performed in 5,401 (73.7 per cent) cases and ablative treatment was used in 1,817 (24.8 per cent) cases (Figure 9). Forty-two cone biopsies (0.6 per cent), 59 hysterectomies (0.8 per cent) and 5 trachelectomies (0.07 per cent) were also performed.

Figure 9: Treatments at colposcopy services from 1 September 2016 to 31 August 2017

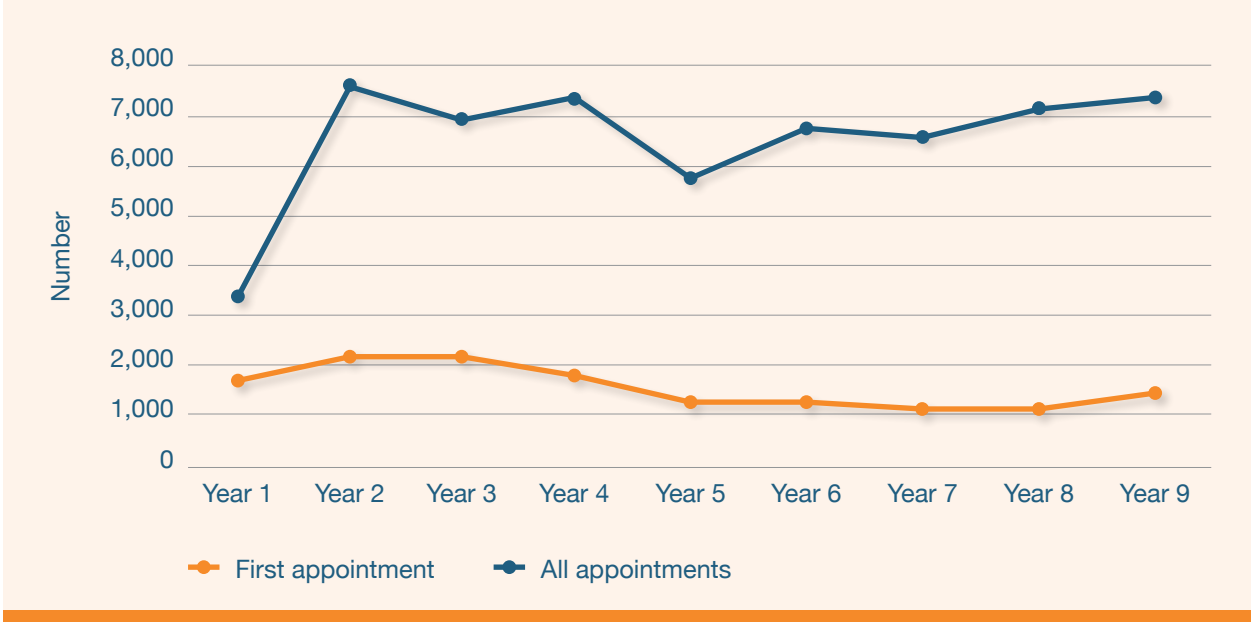


82.8%
of eligible 25-49 year old women screened

In planning for screening, resources were given to deal with the expected increase in women going through colposcopy.

The number of treatments performed annually has grown markedly since the start of the CervicalCheck programme, as the coverage and total number of women participating has increased. This improvement in the number of women participating in the programme means that more women have changes detected and treated before they can progress to cancer.

Figure 10: Number of women undergoing treatment at colposcopy services



One of the guiding principles of screening is the avoidance of overtreatment. This is of particular relevance to cervical screening because of the potential adverse effect of some treatments on future fertility. The treatments performed at the first visit according to the reasons for referral to colposcopy is shown in Table 17.

Table 17: Treatment at first visit to colposcopy from 1 September 2016 to 31 August 2017

Reason for referral to colposcopy	No treatment on first visit		Treatment on first visit		Total number of women attending	
	N	%	N	%	N	%
Clinical indication – non urgent	3,886	96.5%	140	3.5%	4,026	100%
Clinical indication – urgent	2,443	94.1%	154	5.9%	2,597	100%
AGC (borderline glandular)	144	94.1%	9	5.9%	153	100%
High Grade	2,598	75.7%	835	24.3%	3,433	100%
Low Grade	8,348	96.7%	287	3.3%	8,635	100%
Unsatisfactory / Inadequate	74	98.7%	1	1.3%	75	100%
Total	**17,493**	**92.5%**	**1,426**	**7.5%**	**18,919**	**100%**

Treatment at the first visit for women who present with low grade abnormalities should be avoided and kept below 10 per cent. During the ninth year of the programme, this figure was within the target at 3.3 per cent which is within the target of <10 per cent.

More than 90 per cent of women who undergo excisional procedures should have histologically-proven CIN detected on the excised specimen if the procedure is performed at the first visit to colposcopy. During the ninth year of the programme, 90.2 per cent of women treated at the first visit had CIN detected which met this target (Table 18). In addition, 89.7 per cent of women who had an excisional treatment at any visit had CIN histology, meeting the target of greater than 85 per cent (Table 18).

Table 18: Outcome of treatment by excision technique

Performance parameter	2016/2017	Target
Women treated by excisional technique at first visit should have CIN on histology	90.2%	≥90%
Women treated by excisional technique at any visit should have CIN on histology	89.7%	>85%

Colposcopy correlation measure

The correlation between the colposcopic impression and histological diagnosis is a useful marker of the quality of colposcopy. During the reporting year, the positive predictive value (PPV) of a colposcopic impression of high grade disease was 71.5 per cent which is in excess of the programme's target of greater than 65 per cent (Table 19).

Table 19: The positive predictive value of colposcopy

Performance parameter	2016/2017	Target
Compliance between colposcopic impression of high grade disease and histologically proven high grade CIN	71.5%	≥90%

Histology

The objective of a cervical screening programme is the detection and treatment of high grade CIN. The use of HPV testing to triage women with low grade abnormalities was designed to enhance the early diagnosis and treatment of high grade CIN. Treatment of these high grade abnormalities reduces the risk of a women developing cervical cancer. Therefore, the number of these abnormalities that are found and treated is one of the hallmarks of success of a cervical screening programme. In the first nine years of CervicalCheck, there have been 57,805 cases of high grade CIN, 43,883 cases of low grade CIN and 1,400 cancers detected.

In the ninth year of the programme, overall, for all women who attended colposcopy (both new and follow up appointments), there were 131 cancers detected, 7,503 high grade CIN (CIN2, CIN3 or AIS), 7,264 low grade CIN and 4,846 women with no CIN (Figure 11). This is a reduction in high grade abnormalities since Year 8 and may be the effect of screening where low grade abnormalities in the population have been removed in previous years resulting in a drop in the numbers of high-grade abnormalities developing. The specimen was suitable for histological analysis in 98.5 per cent of women biopsied (target >95%) (Table 20).

Figure 11: Detection of CIN and cancer for the nine-year period ending 31 August 2017

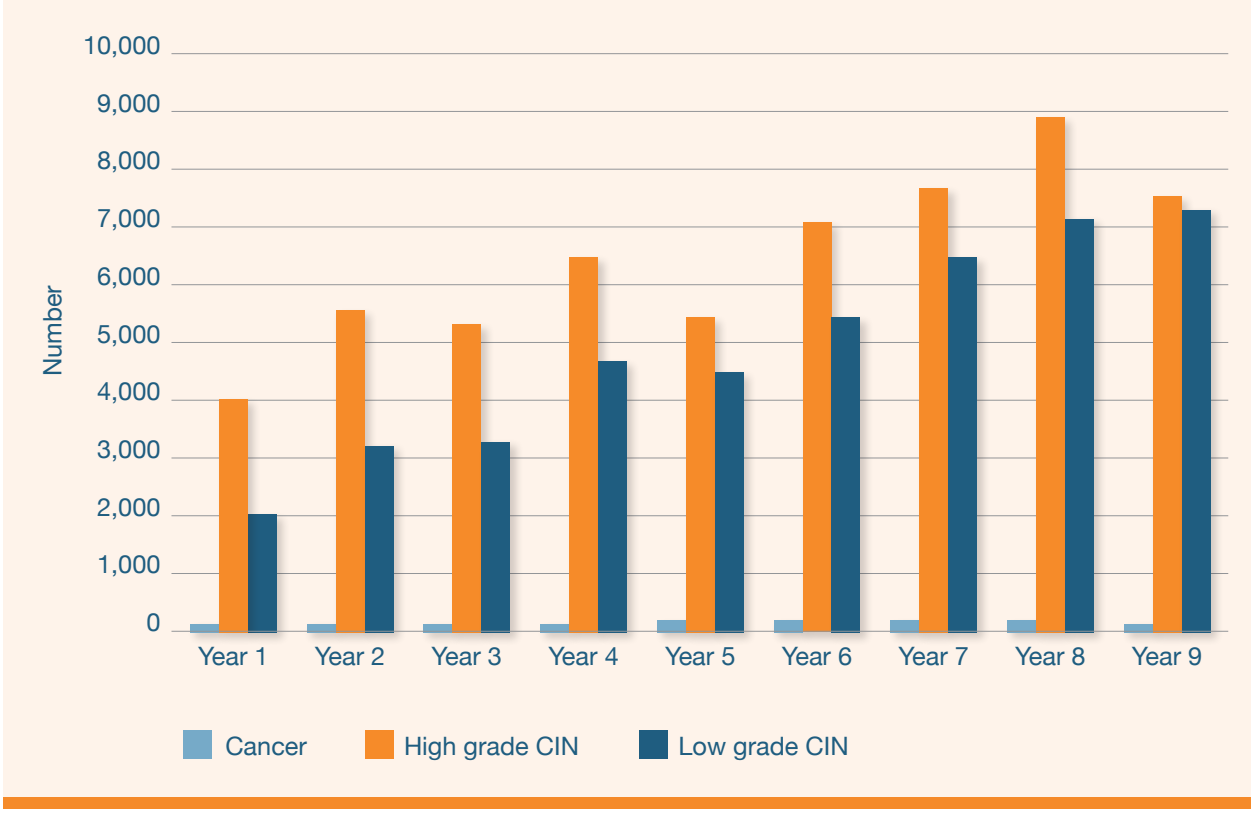


Table 20: Biopsy specimen suitable for histological diagnosis

Performance parameter	2016/2017	Target
Biopsy specimens should be suitable for histological diagnosis.	98.5%	>95%

Correlation between cytology and histology

Cervical screening programmes have to balance the early detection of high grade abnormalities with the avoidance of unnecessary investigations and possible overtreatment. Internationally accepted performance measures have been developed to correlate referral cytology results with histological outcomes in organised, population-based screening programmes.[4] These include the positive predictive value (PPV) and the referral value (RV).

The positive predictive value (PPV) is reported as the percentage of women referred with high-grade cytological abnormality who have a histological diagnosis of CIN2 or higher. During the current reporting year, the PPV was 81.3 per cent (Tables 21 and 22). This means that for every 100 women who have a positive smear result for which they are referred, 81 will have an abnormality found that was either an invasive cancer or would go on to become invasive cancer. The other 19 women will either not have a biopsy taken, or will have a normal or low-grade result (which might self-resolve). These 19 women represent the overtreatment rate.

The referral value (RV) looks at this in another way and examines the number of women referred to colposcopy for the detection of one case of CIN2 or higher. During the current reporting year, the RV was 2.22 (Table 21). This means that for every 222 women referred to colposcopy, 100 had CIN2 or higher detected.

Table 21: Correlation measures between cytology and histology

Cytology-histology correlation	
Positive Predictive value (PPV)	81.3%
Referral Value (RV)	2.22

12,163
women referred to colposcopy (4.6%)

Table 22: Histology results for women who had a satisfactory biopsy at first visit to colposcopy between 1 September 2016 and 31 August 2017

	No CIN / No HPV (normal)		HPV / Cervicitis only		CIN 1		CIN 2		CIN 3		Adenocarcinoma in situ/CGIN		Cancer (including micro-invasive)		Total
Grade of cytology result of referral screening test	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
ASCUS	340	14.4	211	9	1,050	44.6	466	19.8	276	11.7	12	0.5	0	0	2,355
AGC	54	30	18	10	57	31.7	14	7.8	15	8.3	17	9.4	5	2.8	180
LSIL	430	11.6	294	8	1,775	48.1	855	23.2	327	8.9	9	0.2	1	0	3,691
ASC-H	71	9.3	55	7.2	210	27.6	165	21.7	247	32.5	7	0.9	5	0.7	760
HSIL (moderate or severe)	72	3.8	52	2.7	233	12.2	410	21.5	1,092	57.3	18	0.9	28	1.5	1,905
Query invasive squamous carcinoma	0	0	0	0	2	11.1	2	11.1	8	44.4	0	0	6	33.3	18
Query glandular neoplasia / AIS / Adenocarcinoma	7	11.3	1	1.6	5	8.1	1	1.6	8	12.9	32	51.6	8	12.9	62
Unsatisfactory/ Inadequate	8	57.1	1	7.1	5	35.7	0	0	0	0	0	0	0	0	14
Total	**982**	**10.9**	**632**	**7**	**3,338**	**37.1**	**1,913**	**21.3**	**1,973**	**22**	**95**	**1.1**	**53**	**0.6**	**8,986**

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National Screening Service

CervicalCheck
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THE NATIONAL CERVICAL SCREENING PROGRAMME