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# Irish Cervical Screening Programme ANNUAL REPORT 05



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive



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Health Service Executive





Irish Cervical Screening Programme staff

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## FOREWORD

Screening for cervical cancer is possible due to the slow progression of precancerous lesions to cervical cancer. This provides a window of ten years or more to detect and treat these precancerous lesions, thus preventing the progression to invasive cancer.

The Irish Cervical Screening Programme (ICSP) began, following the report of the Department of Health Cervical Screening Committee (DOH, 1996), with a regional development in the Midwest in October 2000. The Programme aims to reduce the incidence and the death rate from cervical cancer.

ICSP is a public health population based screening programme based in primary care with the woman central to the process. Other stakeholders in the Programme include primary care doctors and nurses, cervical cytopathology services, the colposcopy investigation and treatment service and the histopathology diagnostic service.

The aim of the regional programme was to develop and implement a population based, organised, call / recall cervical screening programme to test the operational issues before implementing the national programme.

The eligible population is defined as women aged 25 to 60 years and the screening interval is 5 years. On three yearly screening the risk reduction of invasive cancer is 91% as opposed to 83% on 5 yearly interval. The EU recommends that cervical cancer screening should be offered at least every fifth year. Screening every fifth year with high quality and high compliance is preferable to screening every third year, where resources are limited. Screening more frequently than every 3 years is not cost effective.

The International Agency for Research on Cancer (IARC) confirms that organised cervical screening programmes are effective. With organised quality assurance of every key step of the entire process, it is estimated that an 80% reduction in mortality could be achieved.

The Department of Health and Children requested the CEOs of the Health Boards in August 2001 to examine the feasibility and implications of a roll out of the programme. They commissioned two external reports to review the Phase 1 implementation of ICSP: The Report on the Irish Cervical Screening Programme by Dr Euphemia McGoogan July 2004, and An evaluation of the first phase of the Irish Cervical Screening Programme from the woman's perspective by the Women's Health Council September 2004. A Strategy for Cancer Control in Ireland 2006 section C3.4 states that the ICSP review findings should inform the planning process.

Governance of ICSP moved to the Population Health directorate in 2005. The corporate plan of the Health Service Executive (HSE) 2005-2008 objective 2.2.3 supports the national roll out of the national Cervical Screening Programme and the HSE national service Plan 2006 reinforces this commitment. The Health Service Executive has prepared a detailed implementation plan for a national programme.

In June 2006 the Tánaiste and Minister for Health and Children, Mary Harney TD, announced the establishment of a national cancer screening board that would amalgamate ICSP and Breastcheck. This is with a view to rollout of ICSP by 2008 based on an affordable model. The focus at this time must remain with a national cervical screening programme being available to the women of Ireland.



Dr Pat Doorley  
National Director for Population Health  
Health Service Executive



Dr Kevin Kelleher  
Assistant National Director  
Population Health – Health Protection

It is possible to greatly reduce the number of women that die from cervical cancer. With an organised quality assured screening programme reduced incidence and mortality are achievable.

We celebrate the achievements to date in the arrangements set up for ICSP Phase 1 and look forward to the successful implementation of a fully national programme.

ICSP is committed to a quality assured service for women from participation of women, smear taking, and smear analysis through to diagnosis. The key partner services involved in this continuum are the ICSP central administration office in Limerick, ICSP registered smertakers, designated ICSP cytology and histology laboratories, and colposcopy services. Each service involved in ICSP process is responsible for its contribution to women's health and well being. Each service is also responsible for the provision of a quality assured service to the programme. The ICSP Office is responsible for the overall management, quality assurance and administration of the programme.

The programme promotes a partnership approach to planning service delivery to women and to quality improvement. The ICSP staff work closely with stakeholders and management to achieve this. It is incumbent on ICSP and its screening providers to ensure best practice from the outset of service delivery.

An over arching observation is the numbers of smear tests still carried out in women aged under 25 years. Evidence clearly demonstrates that smears under 25 should be discouraged. The average age of diagnosis of cervical cancer is 44 years and death is 56 years (Women and Cancer in Ireland WHC NCRI Feb 2006). A meta-analysis paper published in the Lancet Feb 2006 describes the association of over treatment of the cervix with subsequent poor obstetrical outcomes. This reaffirms that screening or colposcopy referral under the age of 25 could have negative outcomes and warrants serious consideration by clinicians.

The help of a number of individuals has to be acknowledged in the completion of this report. Thanks are due in particular to Dr Kevin Kelleher Assistant National Director for Population Health who has given selflessly to overseeing the development of the programme since 1997.

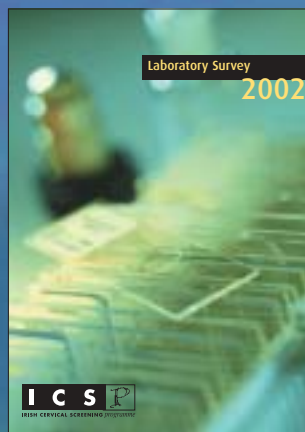
Thanks to all ICSP staff, Dr Fionnuala Donohue SpR Dept of Public Health Limerick, the laboratory staff in cytology at UCHG & St Lukes Dublin, staff at the histology laboratory Mid Western Regional Hospital and the colposcopy clinic in Limerick.



Dr Marian O'Reilly  
Director ICSP



# Background to ICSP Phase 1



## BACKGROUND TO THE ICSP

### 1. Background to ICSP Phase 1

ICSP Phase 1 covers approximately 9% of the eligible population nationally since October 2000. Cytology screening is opportunistic or ad hoc in all other areas of Ireland. In comparing the effect of organised to opportunistic screening in Finland, Nieminen et al (1999) concluded that a well organised screening system is more effective, costs less, and results in less harm than the spontaneous system.

In Ireland up to 250,000 smear tests are screened every year and 22,000 of those are in ICSP Phase 1 programme. The capacity is readily available for a national programme based on a single clearly defined policy. In order for the effective implementation of a screening programme a number of key elements must fall into place. The following sections outline these elements.

#### 1.2 Population Register

The principal recommendations of the Report of the Department of Health Cervical Screening Committee (Dec 1996) said that 'a national cervical screening programme based on an age sex register should be established'. It stated that an age sex register is a prerequisite for an organised population based screening programme and this is the basis for a call/recall system.

The Health (Provision of Information) Act 1997 states that the name address and date of birth may be supplied from existing databases to the programme for screening purposes:

"An Act to allow for the provision of information to the National Cancer Registry Board, The Minister for Health and certain Health Bodies, for the purposes of cancer screening programmes, and to provide for related matters".

On foot of these recommendations and the lessons learned from experiences of the cervical screening programme to date, the Department of Social and Family Affairs is the only data source used. The Social Welfare Act 1998 allows for the creation of the Personal Public services number as a unique identifier on the DSFA system and supports this decision. The file is cleaned and deduplicated on a regular basis.

The Central Statistics Office 2005 population projections identify that over 1,000,000 women are in the Republic of Ireland between the age of 25 and 60. With the establishment of a single national population register of women 25-60, ICSP could be the source of the Breastcheck register of women from 50 years.

Data Quality is a major challenge for the population register. Standards on data quality including the unique identifier and a minimum client dataset are necessary to ensure appropriate risk management for the programme.

The identification of exclusions such as total hysterectomy from HIPE and deaths from the General Register Office (Dublin) through the REACH project is extremely important.

### 1.3 Promotion

The role of promotion is crucial to the extension of the national cervical screening programme. Firstly, in making relevant literature available to the health professionals involved in learning the process of an organised population screening and secondly, to the public at large. This information is critical to smooth the path of moving from an opportunistic system to a more planned system whereby women are targeted by letter to have their smear test. Following on these two steps, the unscreened or under-screened women can be specifically targeted. The aim of promotional activity is to increase uptake in the target age group.

The ICSP Information Line is administrative in nature. Women with questions on clinical matters are directed to talk to their family doctor.

A national promotion strategy has been developed based on the work of ICSP Phase 1 to identify and break down the barriers in attending for a smear test. Participation of women into the programme is by ICSP invitation letter or direct entry at the discretion of their General Practitioner. Areas of poor uptake are identified by District Electoral Division geographically and targeted for specific promotion. A local promotional campaign in Ennis identified that 21% of women in the area had never had a smear test. The promotion office ensures that accurate information is available, through literature, community or peer based education and communication. Consumer surveys, focus groups and research provide the evidence for constant improvements that are made.

A major achievement in 2005 was the development of a suite of four national leaflets – smear test, results, colposcopy and hysterectomy that are distributed widely in primary care and pharmacies. A peer education project has commenced to increase awareness of the programme.

The success of the first national conference held June 18th 2005 indicated the level of enthusiasm and energy of all stakeholders involved in cervical screening.



## BACKGROUND TO THE ICSP



### 1.4 Smeartaking

The basic premise of the programme is that there is a doctor who is clinically responsible for the smear test and follow up. Follow up may involve explanation of results, counselling or referral to the colposcopy clinic. DoHC policy is that screening is primary care based. ICSP Phase 1 has a contract with General Practitioners, family planning and well woman clinics to provide this service. A fee is paid (as of 1st December 2005 €49.66) per programme policy smear including its follow up.

A major milestone in 2005 was the national extension of the Smeartaker Training Programme developed at ICSP Phase 1. The training is certified by either the RCSI (nursing division) or by ICGP. The inclusion of a clinical supervision component is well received and marks a very personal and interactive element to an individual's training. **The critical message is that cervical cytology is a screening test and not a diagnostic test.** Therefore, the taking of a cervical smear is never 'clinically indicated' within primary care.

An EU procurement carried out in 2005 on behalf of the Health Service Executive (HSE) selected a liquid based cytology (LBC) test for use in the UCHG and CUH cytology laboratories. Conversion is underway in 2006. The cost of the LBC consumable is €7.67 per test for GP distributed consumables and €5.97 per test for nonGP distribution.

### 1.5 Cytology and Histology Laboratories

#### Cytology

The cytology screening service for ICSP Phase 1 is provided by UCHG Galway and St Lukes Dublin laboratories. Both laboratories have received funding from DoHC to participate. The ratio of ICSP smears are three to one UCHG to St Lukes.

Laboratories have requested definition of their specific catchment areas and the view is that the four HSE regions will identify practices for smears to be sent to a designated laboratory. The use of LBC technology reduces the rate of inadequate smears from about 10% to around 2% and has been shown to improve productivity in laboratories by up to 40%.

The performance of the cytology laboratory is a key element of an effective implementation of a cervical screening programme. It is imperative that there should be confidence that cervical abnormalities and cancer will be detected on cytology screening and that the rate of false positives and false negative results will be kept to internationally recognised minimum levels. There are quality control measures that must be adhered to for effective standardisation of national practice.

A major achievement for ICSP Phase 1 is the establishment of the cytology training module at the Dublin Institute of Technology Kevin Street with their first student entry in September 2005. This will increase the numbers of much needed cytology trained medical laboratory scientists.

Other achievements include:

- ICSP cytology referral form review (Appendix 1)
- a national standard non ICSP cytology referral form July 2005 (Appendix 2)
- The establishment of the Technical External Quality Assurance scheme by ICSP.

#### Histology

The histology diagnostic service for ICSP Phase 1 is based in the Mid Western Regional Hospital Limerick. To date the histology SNOMED (T and M codes) results captured on CSR relate only to those women attending the colposcopy clinic who have consented for this information transfer.

In 2001 it was established that 16 laboratories were reporting the histology of cervical specimens. This needs to be centralised to at most four or one per HSE region. Future developments are the establishment of a national histology referral form for cervical specimens to be used in all gynaecology services, the setting up of case conferencing and correlation of the histology outcome to the index or referring smear.

In July 2004 an external review of ICSP recommended specific requirements for the laboratories.



### 1.6 Colposcopy investigation and treatment service

The colposcopy service for ICSP Phase 1 is based in the Regional Maternity Hospital Limerick. It is one of 18 clinics nationally that have been visited by ICSP with a view to meeting the standards of the British Society for Colposcopy and Clinical Pathology (BSCCP).

The clinic is able to audit its referrals and activities using its own dedicated computer system. The number of inappropriate referrals has led to changes that are increasing efficiencies.

A referral by a general practitioner to a colposcopy clinic (Appendix 3) is considered to be a public referral that would not generate a charge. This information should be made clear to the woman at the point of scheduling her appointment and should be displayed at the clinic.

Should the numbers of women opting for private care at a public clinic become such that it overtakes the public clinic provision, then the consultant should be required to provide additional public sessions to maintain the public private mix and also, to fulfil the terms of the consultant public contract for work.

A major achievement is the new and emerging development of the advanced nurse practitioner role in undertaking clinical duties in the colposcopy service.

### 1.7 Information Technology in the Administration of ICSP

The Pap Test Register Software System from New South Wales Australia is the base system enhanced by ICSP Phase 1. It has the capability to be the national programme information system. For a national programme linkages and arrangements for data transfer at the relevant cytology, histology laboratories and colposcopy clinics throughout the country need to be operationally tested. The colposcopy clinics are scheduled to be linked in 2006. Laboratories are at various stages of readiness.

## BACKGROUND TO THE ICSP

A major achievement in 2005 is the decision to develop CSR linkages through the government virtual private network (GVPN). GVPN using FTP will transfer all files in both directions. It will provide a virtual private network between the labs/clinics and ICSP to avoid interception of the file transfer. The file will also be encrypted during transmission using PGP software.

The computerised cervical screening register (CSR) information system at the national ICSP office in Limerick supports the following: the population register, the administration of call/recall and failsafe. It is also linked electronically to the current cytology colposcopy and histology service providers for clinical results. Cytology results are coded to 'P' cytology pattern and 'R' management recommendations (Appendix 4) and are mapped to the dyskaryosis terminology. Histology outcomes are the SNOMED T topography and M morphology codes. These codes form the CSR history (Appendix 5) that is available from ICSP to laboratories and clinics.

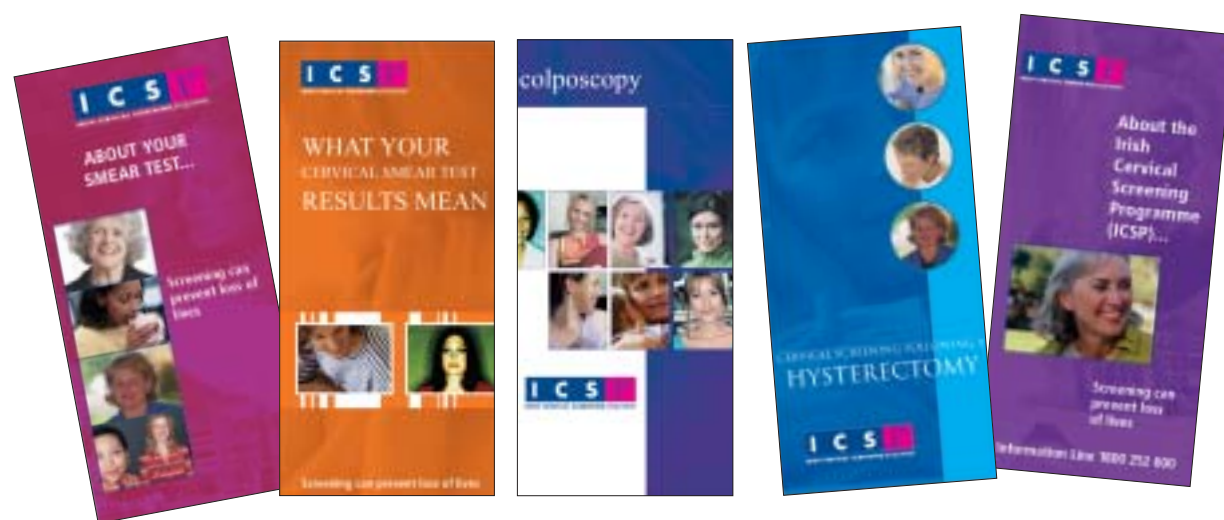
Women must give explicit consent for their clinical information to be held on CSR so data may not capture all of the screening activity occurring in the region. (Appendix 6)

GP payments are generated following a validation process. In the national context payments may be from the Primary Care Reimbursement Service following on the outcome of the GP contract review.

A software tool is used to provide statistical reports generated from data held on CSR. The ISO 9001-2000 certification achieved by the Limerick ICSP office defines a standard approach to report definition and development.

Privacy issues remain the barrier to complete records held for women on CSR. Legislative changes may be required to enable collection and transmission of all smear test results and relevant clinical data to be compiled in CSR.

Future developments will be CSR access by external ICSP stakeholders to view information in real time.



## Statistics





# STATISTICS

## 2. STATISTICS

### 2.1 Summary

This statistical review for 2001-2005 indicates that coverage of the target population of women aged 25-60 was 60.9%. Access to the service was initiated at the discretion of their doctor for 76.5% of women as compared to 23.5% of women having a smear test taken in response to an Irish Cervical Screening Programme invitation letter. There were 2,139 unique women seen in colposcopy from January 2002 to December 2005 representing 5.5% (2,139/38,613) of the total number screened during the period. It is to be expected that at the start up of a screening programme there will a higher pickup rate of pathology than when the programme is well established.

The external review report of ICSP July 2004 recommends dropping the 12 month smear and changing to a three-year screening interval in women aged 25-44 following on with five yearly screening from 45 to 60 if there has been 2 consecutive negative smear results.

As ICSP Phase 1 is a regional programme in Ireland there are difficulties in identifying the border areas to ICSP phase 1. Movement of the population at the borders can result in changing eligibility in a more dynamic target population than would be seen in a National Programme. Confidence in coverage and histology outcomes will be heightened in a National Programme.

### 2.2 Objective

The objective of the statistical section of this report is monitoring ICSP Phase 1 activity based on the organisational issues required in establishing the regional programme. Key performance indicators are intended for monitoring the screening process and to allow early identification of problems and reactions if needed. They deal with the aspects of the screening process which are related to both its impact and to its human and financial costs.

Statistics are gathered regarding activity of the:

- Population register
- Smear test attendance rates and coverage
- Laboratories – cytology and histology
- Colposcopy service
- Payments for taking the test.

The monitoring and evaluation of a National Cervical Screening Programme is essential and mechanisms to support it are required. Cost effectiveness, coverage, and the decrease in the incidence and mortality of cervical cancer as a result of the programme are the major measures required. A number of screening rounds are required to decrease morbidity and mortality. There will be confidence in evaluation outcomes of a national programme when all stakeholders adhere to one clearly defined national policy.

### 2.3 Methodology

The prime source of the following data is the Cervical Screening Register (CSR) based on five years data up to 31st December 2005. Reporting on screening activity at population level in ICSP Phase I is made possible by the demographic details and screening data stored centrally in the CSR for each woman. A minimum data set is established for the CSR and interfaced electronic linkages to facilitate unique identification of a woman across inputs and outputs. The Personal Public Service (PPS) number is the unique identifier recommended. An extensive de-duplication process of women's files is undertaken annually and name matching software is active on the CSR. Information retained on the women for ICSP purposes is subject to the Data Protection Act 1998 and 2003.

### 2.4 Analysis

The CSR contained the files of 106,062 women for Phase I of the screening programme as of 31st December 2005. These women were grouped into one of three categories: active, inactive or permanently inactive (Table 1).

The inactive category identifies those women who are, for an interim, exempt from the programme for reasons such as self-deferral of routine smear, under the care of colposcopy services or undergoing other medical treatment, under age or have temporarily moved out of the ICSP region.

The permanently inactive file is an archive of women who are not eligible for the screening programme due to death, reaching the age of 61, having a history of a total hysterectomy for benign reasons, having moved out of the country or having requested not to be part of the programme.

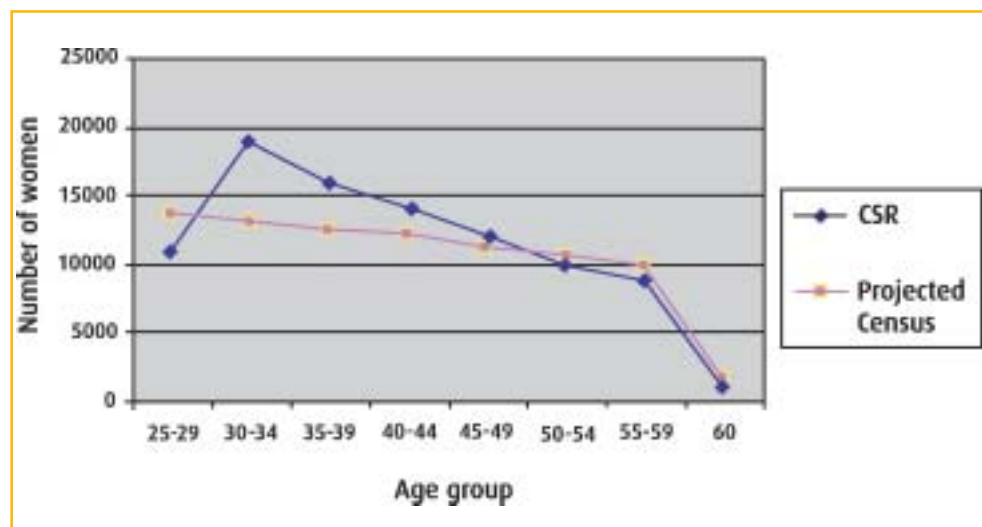
Table 1 Number of women on the CSR by age group and category on 31st December 2005

Age Group	Active	Inactive	Permanently inactive	Total	Total within age cohort	Total Percent within age cohort
<25	403	2,073	23	2,499		
25-29	9,147	1,778	108	11,033	11,033	11.45%
30-34	15,709	3,476	671	19,856	19,856	20.60%
35-39	13,548	2,525	558	16,631	16,631	17.26%
40-44	12,267	1,895	518	14,680	14,680	15.23%
45-49	10,439	1,276	485	12,200	12,200	12.66%
50-54	9,114	1,002	640	10,756	10,756	11.16%
55-59	8,077	804	640	9,521	9,521	9.88%
60 only	821	429	448	1,698	1,698	1.76%
61+	1,155	3,293	2,740	7,188		
<b>All Total</b>	<b>80,680</b>	<b>18,551</b>	<b>6,831</b>	<b>106,062</b>	<b>96,375</b>	

Figure 1 profiles the CSR population demographics against the 2002 census projection data for 2005 in the HSE Mid-Western area for women in the target population (25-60). The under 25 and over 60 age groups along with women in the permanently inactive CSR category have been excluded to better reflect the ICSP target population. The number of women aged 45 years and over in the CSR is aligned well with the census while less congruence is evident in the lower age groupings especially for those women aged 30 to 34. This younger cohort is more mobile in residential terms than older age groups and could explain the disparity. The drop in the graph at age 60 reflects the reference to that age alone whereas the other points refer to five year age cohorts.



Figure 1 Correlation between the number of women 25-60 on 31st December 2005 on the CSR database and the CSO 2002 Projected figure for 2005.



2.4.1 Level of screening

2.4.1.1 Number of women screened

Up to 31st December 2005, 54,940 unique women attended for cervical screening in the ICSP Phase I region of which 8.5% (4,652/54,940) were below and 2.7% (1,469/54,940) above the age threshold for ICSP screening. (Table 2).

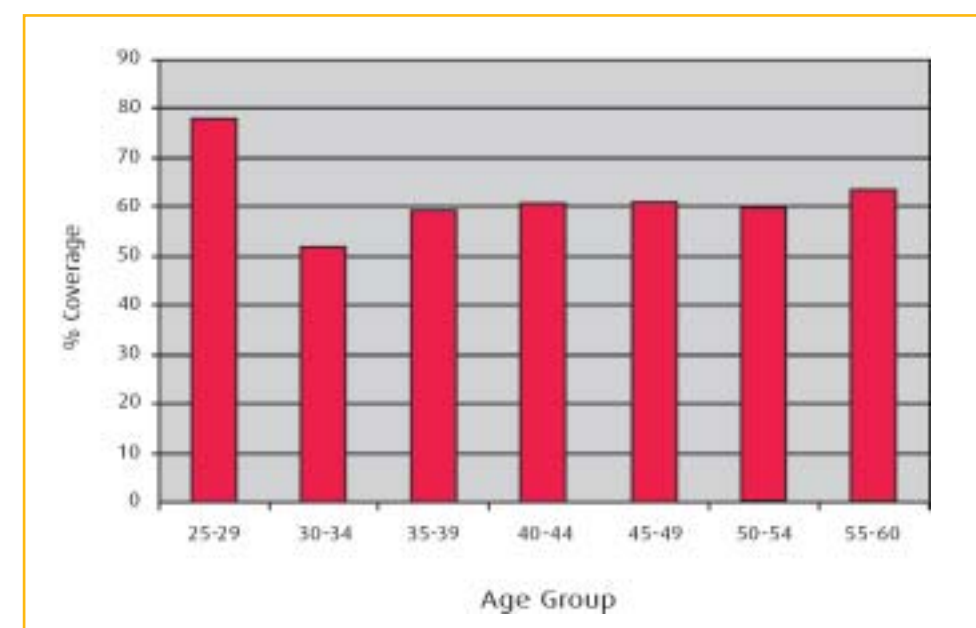
Table 2 Number of unique women screened by age at most recent smear for the period January 2001 – December 2005.

Age Group	2001	2002	2003	2004	2005	Total	Total within age cohort	Total Percent within age cohort
<25	1,041	966	902	928	815	4,652		
25-29	1,818	1,747	1,538	1,502	1,573	8,178	8,178	16.47%
30-34	1,835	1,819	1,881	1,440	1,392	8,367	8,367	16.92%
35-39	1,827	1,832	1,848	1,290	1,435	8,232	8,232	16.59%
40-44	1,601	1,563	1,639	1,214	1,303	7,320	7,320	14.81%
45-49	1,304	1,293	1,442	1,033	1,127	6,199	6,199	12.68%
50-54	1,073	1,028	1,179	973	1,001	5,254	5,254	10.83%
55-59	670	1,531	1,268	633	550	4,652	4,652	10.31%
60 only	78	293	156	44	46	617	617	1.40%
61+	280	467	326	202	194	1,469		
<b>Total</b>	<b>11,527</b>	<b>12,539</b>	<b>12,179</b>	<b>9,259</b>	<b>9,436</b>	<b>54,940</b>	<b>48,819</b>	

2.4.1.2 Coverage

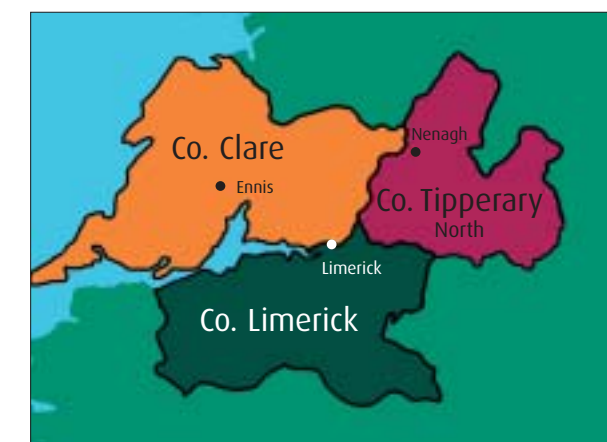
Coverage is a cumulative measure of the number of eligible women (25-60 years) who have undergone smear testing over the screening interval and provides information on the relative extent to which the ICSP is reaching its target population. Coverage of women in the ICSP Phase 1 from January 2001 – December 2005 is defined as the number of women who have had an adequate smear within the last five years expressed as a percentage of the eligible women from the CSR database (Figure 2). The proportion of the target population screened in intervals is the main determinant of success of a screening programme. On the other hand, too frequent testing increases human and financial costs with only a very small gain in mortality reduction. Coverage from January 2001 to the end of December 2005 was 60.9% (49,739/81,691) tabulated on the 4th of October, 2006.

Figure 2 ICSP coverage for the period January 2001 – December 2005



Definition of Coverage

The age cohort reflects the age at the most recent smear test in the five year screening interval; only adequate smears are counted. This is the first annual report to count only adequate smear results reported. It is also the first report, which does not include data on women screened from October to December 2000. Therefore statistics in this report are not directly comparable with those of previous reports. However use of this new definition of coverage will allow comparisons to be made internationally when the National Programme is established.



# STATISTICS

## 2.4.2 Entry for women into the Cervical Screening Programme

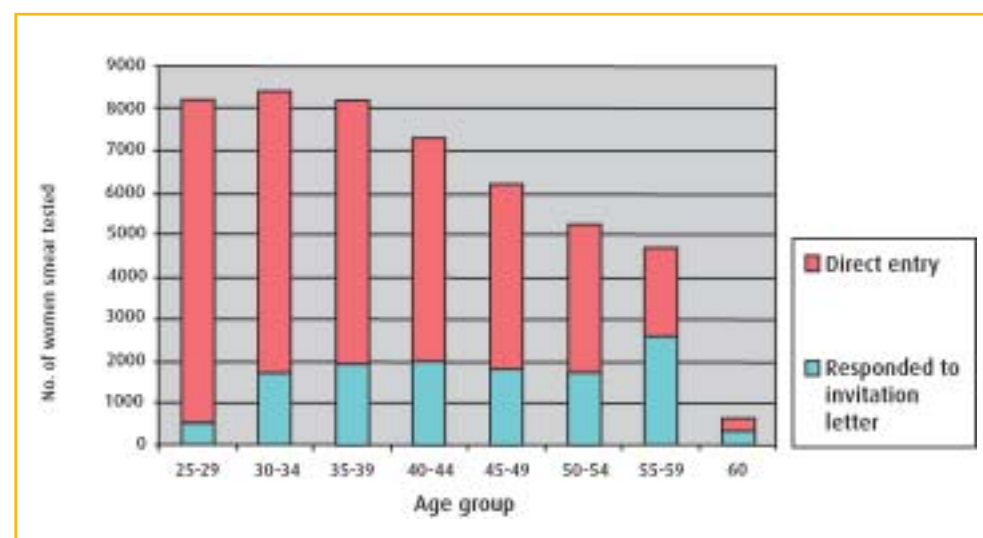
A first programme smear can be as a result of an ICSP invitation letter issued to the women or can be directly initiated at the discretion of her doctor. A direct smear pre-empts an invitation letter being sent to the woman in the first five year screening interval.

### 2.4.2.1 Method of entry

The majority, 76.5% (42,048/54,940), of women screened from January 2001 to December 2005 entered the programme directly and included almost all women under 30 years of age (Figure 3). Those most likely to attend for smear testing as a result of an invitation from the ICSP were women over 55+ years of age. Some 61 year old women received invitation letters prior to 2005.

The DSFA update file was first updated on CSR in September 2005 and could explain low numbers in women under 30 years of age as the addresses were not all known to ICSP. The ICSP call policy is that invitation letters are issued using the date of birth to target women at five year intervals from 25 to 55 years but letters are issued yearly from 55 to 60 years of age. The latter age group are targeted yearly so that they get the opportunity to participate before age 60 years hence the greater response in women over 55 years.

Figure 3 Method of programme entry for women by age group for the period January 2001 –December 2005



### 2.4.2.2 Response of women to invitation letters

Over the review period from January 2001 – December 2005, 158,254 invitation letters including reminders were sent to 63,663 women offering free screening as part of the ICSP systematic call / recall programme. The statistics show that 21.8% (13,858/63,663) of women had a smear taken sometime during the six months following the issuing of the invitation letter. A further 15.7% (10,034/63,663) contacted the ICSP office to provide information as to why they did not require a programme smear at the time (Table 3). This represented a 37.5% response rate to letters.

There were a large number of non-responders, 62.5% (39,771/63,663), which could be explained by the possibility of the CSR holding an incorrect address on the woman. This is an area that requires follow up.

Table 3 Response of women to an invitation letter to attend for an ICSP smear for the period January 2001 to December 2005

Responses	No. of women	% of total no. of women issued an invitation letter
Smear taken within defined period	13,858	21.8
Woman requested not to be part of the ICSP	612	1.0
Reported death	649	1.0
Reported recent smear taken prior to letter	527	0.8
Reported History of total hysterectomy	2,310	3.6
Reported to live outside the ICSP region	3,724	5.8
No response	39,771	62.5
Other	2,212	3.5
<b>Total</b>	<b>63,663</b>	

## 2.4.3 Smear activity

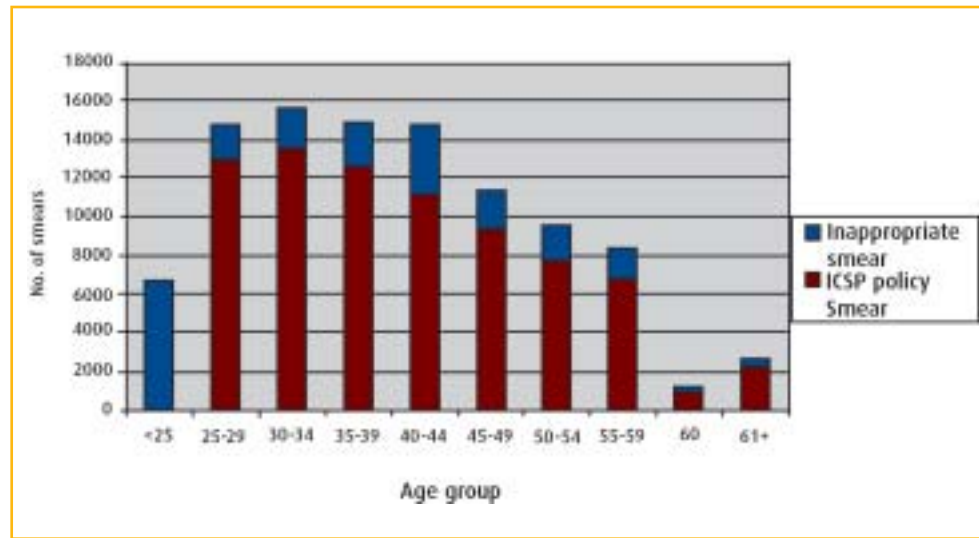
### 2.4.3.1 Adherence to ICSP screening policy

Overall, policy smears represented 78.6 % (77,180/98,153) of all smears received by the ICSP and accounted for €3,472,998 worth of payments issued to the end of 2005 (fee per smear ranged from €40.19 in 2000 – €44.98 in 2003– €46.33 in 2004 and 2005).

A little more than 20% (21,045/98,153) were inappropriate smears for which no payment was made and included all smears on women under 25 years of age. The level of inappropriate smear-taking was generally low within the ICSP eligible (25-60 years) population (Figure 4). Even more smears may have been taken in the under 25 age group but as they are not eligible to be in ICSP they are not captured by CSR. Smear tests in women over 60 years of age are appropriately followed up as indicated by cytology management guidelines and especially if it is a first ever smear.



Figure 4 Distribution of ICSP policy and inappropriate smears by woman's age for period January 2001 to December 2005



A large excess of smears per screened woman as compared to the expected protocol has been observed (Table 4). This has been determined to be cost inefficient. If the change in screening interval is adopted as recommended by the external review report of ICSP July 2004 the current policy of a 12 month smear following a first negative result would be dropped.

Table 4 The number of smears for unique women grouped by count of smears

Smear Group	Number of Smears	Number of Unique Women	Percentage
1 Smear	30,108	30,108	54.64%
2 Smears	40,580	20,290	36.83%
3 Smears	8,679	2,893	5.25%
4 Smears	4,004	1,001	1.82%
5 Smears	2,425	485	0.88%
6 Smears	1,272	212	0.38%
7 Smears	560	80	0.15%
8+ Smears	248	29	0.05%
<b>Total</b>	<b>87876</b>	<b>55098</b>	

2.4.4 Cytology

Of the 98,153 smears taken, the slides of 552 smears were either damaged or broken and a further 1,698 were pending results at the end of 2005 and are not included in this analysis. The remaining 95,903 smear samples are reported here.

2.4.4.1 Cytology findings

From the raw data of cytology screening activity 10% were reported unsatisfactory or inadequate for cyto-screening and required repeating (Table 5).

When the figures are adjusted to remove the unsatisfactory or inadequate smear reports from the total reported (Table 6) 2.34% of smear samples showed moderate dyskaryosis, severe dyskaryosis, invasive squamous carcinoma and glandular neoplasia.

Up to 2005 University College Hospital Galway processed 71.31% (68,392/95,903) ICSP smears with another 23.85% (22,869/95,903) being processed by St. Luke's Hospital. 5,000 LBC smears were processed by RCSI cytology laboratory from 2002.

The level of inadequate or unsatisfactory reporting at UCHG and St. Luke's cytology laboratories on conventional smears ranged from 9.8% (6,671/68,392) – 11.9% (2,725/22,869) respectively. With the introduction of Liquid Based Cytology technology at UCHG and St Lukes in 2006 it is anticipated that the unsatisfactory reporting rate should drop.

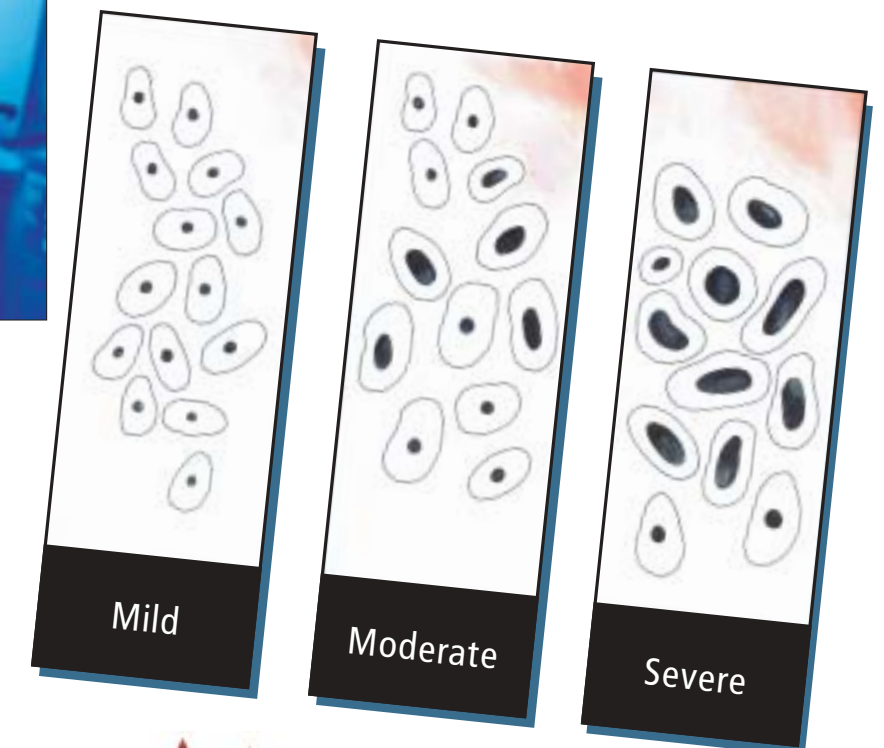


Table 5 Cytology findings for Smears in the period January 2001 – December 2005

Year	Smears				Cytology findings	
	Total number of smears processed		Unsatisfactory/ Inadequate		Satisfactory/ Adequate Smears	
	n	% of n	No.	% of n	No.	% of n
2001	8642	9.74%	842	9.74%	7800	90.26%
2002	20324	10.07%	2046	10.07%	18278	89.93%
2003	24384	8.67%	2114	8.67%	22270	91.33%
2004	23470	10.97%	2574	10.97%	20896	89.03%
2005	19083	10.05%	1918	10.05%	17165	89.95%
<b>Total</b>	<b>95903</b>	<b>9.90%</b>	<b>9494</b>	<b>9.90%</b>	<b>86409</b>	<b>90.10%</b>

Table 6 Cytology findings excluding Unsatisfactory Smears in the period January 2001 – December 2005

Year	Smears n	Cytology findings															
		NAD		BNA (sq) or HPV		BNA (pl)		Mild dyskaryosis		Moderate dyskaryosis		Severe dyskaryosis		Query invasive Sq Ca		Query Glandular Neoplasia	
		No.	%of n	No.	%of n	No.	%of n	No.	%of n	No.	%of n	No.	%of n	No.	%of n	No.	%of n
2001	7800	7162	91.82	260	3.33	19	0.24	174	2.23	80	1.03	102	1.31	1	0.01	2	0.03
2002	18278	16825	92.05	636	3.48	25	0.14	375	2.05	207	1.13	193	1.06	13	0.07	4	0.02
2003	22270	20365	91.45	767	3.44	22	0.10	580	2.65	263	1.18	237	1.06	14	0.06	12	0.05
2004	20896	19390	92.79	587	2.81	31	0.15	473	2.26	216	1.03	178	0.85	10	0.05	11	0.05
2005	17165	15554	90.61	424	2.47	33	0.19	673	3.92	263	1.53	207	1.21	7	0.04	4	0.02
<b>Total</b>	<b>86409</b>	<b>79296</b>	<b>91.77</b>	<b>2674</b>	<b>3.09</b>	<b>130</b>	<b>0.15</b>	<b>2285</b>	<b>2.64</b>	<b>1029</b>	<b>1.19</b>	<b>917</b>	<b>1.06</b>	<b>45</b>	<b>0.05</b>	<b>33</b>	<b>0.04</b>

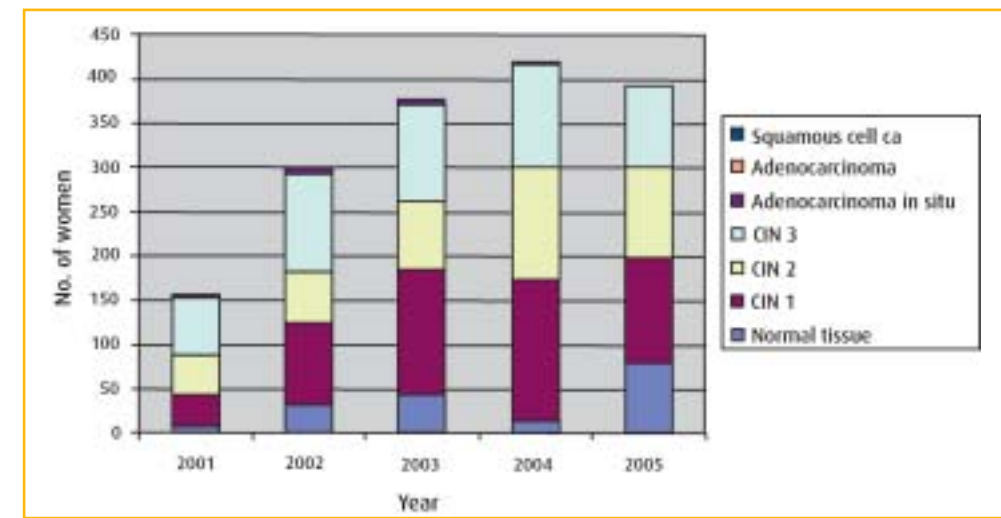
2.4.5 Histology

The highest ranking SNOMED coding is reported here for each woman. If a woman has a number of histologically diagnosed specimens, the most abnormal grade is noted.

2.4.5.1 Histology findings by year

Histology findings relating to the cervix were reported for 1,646 women screened for the period of January 2001-December 2005. (Figure 5).

Figure 5 Distribution of histology findings by highest ranking SNOMED code for the period January 2001 – December 2005



Of women referred to histology the abnormal SNOMED result indicated was 33.4% (549/1,646) with low grade CIN 1 and 30.0% (493/1,646) with pre-invasive CIN 3. Carcinoma was diagnosed in 15 women (Table 7).

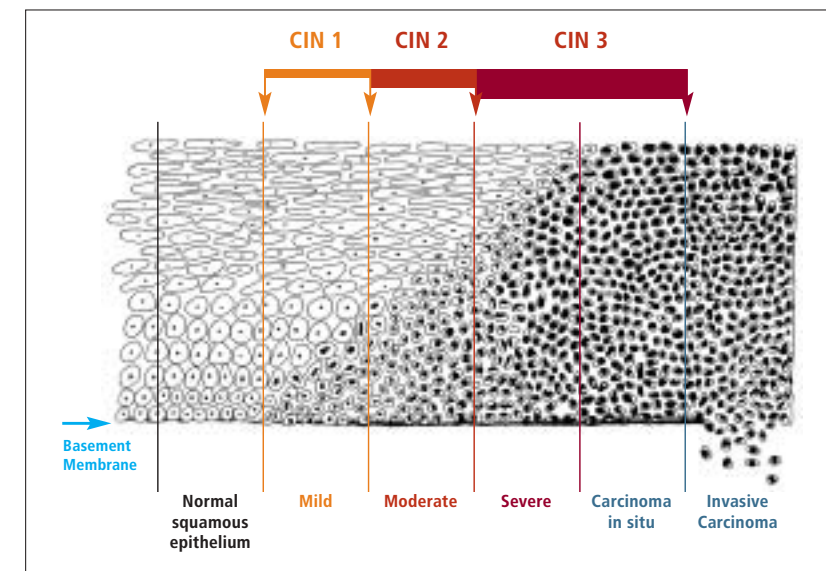


Table 7 Distribution of histology findings by highest ranking SNOMED code for the period January 2001 – December 2005

Age group	Histology findings																			
	Inadequate		Normal tissue		CIN 1		CIN 2		CIN 3		CCIN		Adeno-carcinoma in situ		Adeno-carcinoma		Squamous cell ca			
	n	%of n	No.	%of n	M74006	No.	%of n	M74007	No.	%of n	M74008	No.	%of n	M81402	No.	%of n	M81403	No.	%of n	
2001	157	0.0	7	4.5	37	23.6	45	28.7	65	41.4	0	0.0	3	1.9	0	0.0	0	0.0	0	0.0
2002	298	0.0	33	11.1	91	30.5	58	19.5	112	37.6	0	0.0	2	0.7	0	0.0	2	0.7	0	0.0
2003	378	0.0	44	11.6	142	37.6	77	20.4	110	29.1	0	0.0	3	0.8	0	0.0	0	0.0	2	0.5
2004	419	0.0	14	3.3	160	38.2	127	30.3	116	27.7	0	0.0	0	0.0	1	0.2	1	0.2	1	0.2
2005	394	0.0	79	20.1	119	30.2	106	26.6	90	22.8	0	0.0	0	0.0	1	0.3	1	0.3	0	0.0
Total	1646	0.0	177	10.8	549	33.4	412	25.0	493	30.0	0	0.0	6	0.5	2	0.1	2	0.1	5	0.3

2.4.6 Colposcopy

From 2002 to 2005, 5.53% (2,139/38,613) of the total number of women screened were seen at colposcopy (Table 8). The figures for colposcopy attendance for 2001 are not included in this statistical analysis as this included women screened from October to December 2000. Inclusion of the 2001 colposcopy figures would therefore not allow for valid comparison of colposcopy activity between the different years.

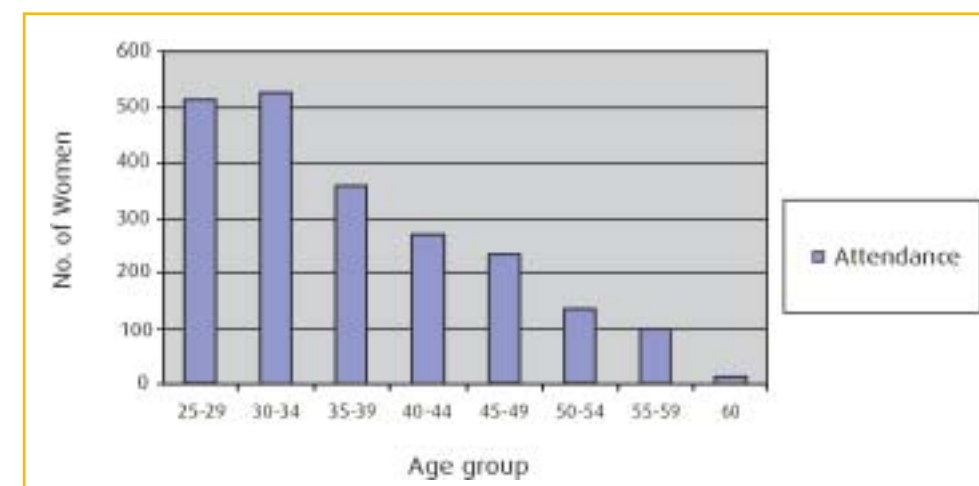
It is apparent that there is a high degree of compliance by women when the numbers of colposcopy referrals (R7 cytology code) on CSR are compared to those who attend.

Table 8 Number of unique women who attended colposcopy for the period January 2002 – December 2005.

Age group	No. of Women				Total	No. of attendances
	2002	2003	2004	2005		
25-29	108	136	134	133	511	1,515
30-34	81	145	148	151	525	1,475
35-39	67	110	90	90	357	962
40-44	45	63	85	75	268	748
45-49	40	73	66	53	232	599
50-54	26	31	41	37	135	306
55-59	24	29	23	22	98	213
60	5	5	3	0	13	31
Total	396	592	590	561	2,139	5,849

A unique woman (Figure 6) usually attends the clinic a number of times throughout her management before being discharged back to her General Practitioner.

Figure 6 Number of unique women who attended colposcopy for the period January 2002 – December 2005



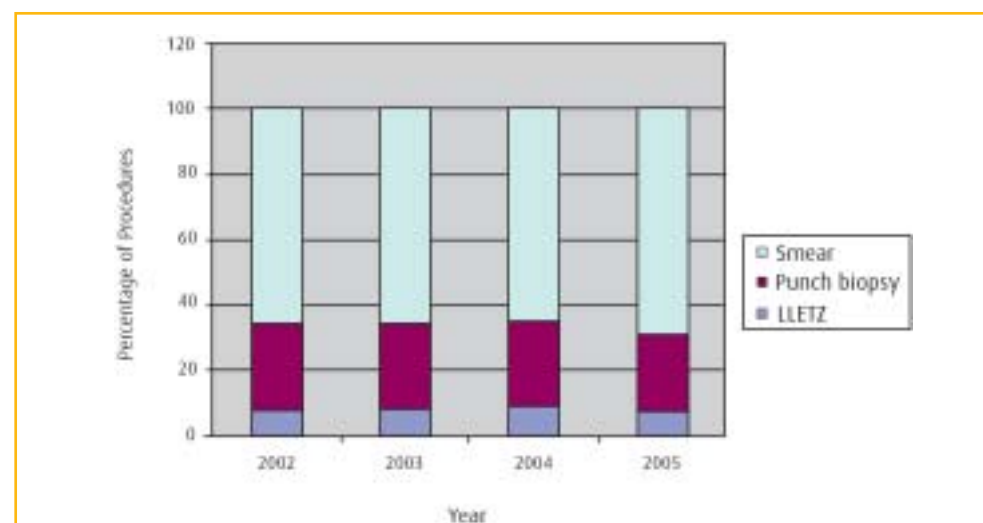
## STATISTICS

Not all women attending the colposcopy clinic will have a procedure carried out or biopsy taken (Table 9 and Figure 7). These figures indicate a high number of smears are taken that warrants further review. The external review of ICSP July 2004 states that the routine taking of cervical smears from every woman who has been referred to the clinic is unnecessary and a waste of resources. Repeat smears at the first visit should only be required in those few women with an abnormal referral smear who show no colposcopic abnormality.

**Table 9** Types of colposcopy procedures as a percentage of number of procedures for the period January 2002 – December 2005.

ICSP Colposcopy Procedures							
Total	Number of Procedures	LLETZ		Punch biopsy		Smear	
		No.	%of n	No.	%of n	No.	% of n
Year	n	No.	%of n	No.	%of n	No.	% of n
2002	1298	98	7.6	344	26.5	856	65.9
2003	2017	177	8.8	509	25.2	1331	66.0
2004	2287	219	9.6	584	25.5	1484	64.9
2005	2151	163	7.6	500	23.2	1488	69.2
<b>Total</b>	<b>7753</b>	<b>657</b>	<b>8.5</b>	<b>1937</b>	<b>25.0</b>	<b>5159</b>	<b>66.5</b>

**Figure 7** Types of colposcopy procedures as a percentage of number of procedures undertaken by year for the period January 2002 – December 2005



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APPENDICES

Appendix 1 ICSP Cytology Referral form

OP/F/023 rev B

This form is titled 'CERVICAL CYTOLOGY FORM'. It is divided into four main columns: Smeartakers, WOMAN'S DETAILS, DOCTOR / SMEAR TAKER, and LABORATORY USE ONLY. The Smeartakers column includes a section for 'Smeartakers' with fields for name, address, and phone number, and a 'Practice follow-up checklist' with checkboxes for 'Consent Received', 'Cervix Visualised', 'Result Received', and 'Patient Informed'. The WOMAN'S DETAILS column contains personal information and a 'Smear Test' section with checkboxes for 'HPV', 'HPV + Pap', and 'HPV + Pap + Colposcopy'. The DOCTOR / SMEAR TAKER column has a large area for notes and a 'Smear Test' section with checkboxes for 'HPV', 'HPV + Pap', and 'HPV + Pap + Colposcopy'. The LABORATORY USE ONLY column includes fields for 'Smear Test', 'Smear Test', 'Smear Test', and 'Smear Test'. The ICSIP logo is in the bottom left corner.

Appendix 2 Non ICSP Cytology Referral form

OP/F/024 rev B

This form is titled 'CERVICAL CYTOLOGY FORM'. It has two main sections. The first section is 'Consent for cervical screening' with two numbered questions: '1 Why are you signing this form?' and '2 How will my information / smear test sample be used?'. The second section is 'Information about Smear Tests and Results' with four numbered questions: 'A What is a cervical smear test?', 'B Limitations of a cervical smear test.', 'C How do I get my results?', and 'D I'm afraid of what the results might mean...'. The ICSIP logo is in the bottom left corner.

This form is titled 'CERVICAL CYTOLOGY FORM'. It has two main sections. The first section is 'Consent to take part in the Irish Cervical Screening Programme' with three numbered questions: '1 Why are you signing this form?', '2 What is the ICSP Register?', and '3 How will my information / smear test sample be used?'. The second section is 'Information about Smear Tests and Results' with four numbered questions: 'A What is a cervical smear test?', 'B Limitations of a cervical smear test.', 'C How do I get my results?', and 'D I'm afraid of what the results might mean...'. The ICSIP logo is in the bottom left corner.

This form is titled 'CERVICAL CYTOLOGY FORM'. It is divided into four main columns: Smeartakers, WOMAN'S DETAILS, DOCTOR / SMEAR TAKER, and LABORATORY USE ONLY. The Smeartakers column includes a section for 'Smeartakers' with fields for name, address, and phone number, and a 'Practice follow-up checklist' with checkboxes for 'Consent Received', 'Cervix Visualised', 'Result Received', and 'Patient Informed'. The WOMAN'S DETAILS column contains personal information and a 'Smear Test' section with checkboxes for 'HPV', 'HPV + Pap', and 'HPV + Pap + Colposcopy'. The DOCTOR / SMEAR TAKER column has a large area for notes and a 'Smear Test' section with checkboxes for 'HPV', 'HPV + Pap', and 'HPV + Pap + Colposcopy'. The LABORATORY USE ONLY column includes fields for 'Smear Test', 'Smear Test', 'Smear Test', and 'Smear Test'. The ICSIP logo is in the bottom left corner.





Appendix 3

Colposcopy Referral Form

**COLPOSCOPY REFERRAL FORM**

(Please attach a copy of the referring cytology smear result form as necessary)

TO: Colposcopy Clinic  
Regional Maternity Hospital  
Ennis Road  
Limerick

DATE:  DAY  MONTH  YEAR

---

**WOMAN'S DETAILS**

Name:

Address:

Contact Tel Number:

Date of Birth:  DAY  MONTH  YEAR

Personal Public Service Number:

Cervical Screening Programme Identification:

Mother's Maiden Name:

Nickname at Birth:

ICSP Smear  Yes  No

Referral Smear Details:

← Cytology Lab Accession Number

← Reporting Lab

Ref Smear History:

Lab Name	Lab No.	Test Date	Result

Medical/Surgical History:

Medications:

Doctors Comment:

Appendix 4

From information pack 2001 pg 21

Cytology Pattern (P Codes)		Management Recommendation (R Codes)	
P1	Unsatisfactory/Inadequate	R6	Repeat smear in 1-3 months
		R7	Refer for Colposcopy after 3 consecutive
		R7	Refer for Colposcopy - single unsatisfactory / inadequate after treatment
P2	Negative/NAD	R1	No recommendation (women exiting programme)
		R2	Normal recall
		R3	Repeat smear in 12 months (either previous history available or first ever smear or scanty)
		R4	Repeat smear in 6 months if first negative after treatment of a high grade lesion
		R7	Refer for Colposcopy opinion if suspicious cervix
P3	Borderline Nuclear Abnormalities (Squamous) or HPV	R4	Repeat Smear in 6 months
		R7	Refer for Colposcopy after 3 consecutive BNA (sq)
P4	Mild Dyskaryosis	R4	Repeat Smear in 6 months
		R7	Refer for Colposcopy after 2 consecutive
		R7	Refer for Colposcopy - single mild dyskaryosis after treatment in colposcopy
		R7	Refer for Colposcopy - 3 untreated (ie. not attend appointment) in 10 years
P5	Moderate Dyskaryosis	R7	Refer for Colposcopy
P6	Severe Dyskaryosis	R7	Refer for Colposcopy
P7	Query Invasive Carcinoma	R7	Refer for Colposcopy
		R8	Refer for specialist gynaecology opinion
P8	Borderline Nuclear Abnormalities (Glandular)	R5	Repeat Smear in 3 months
		R7	Refer for colposcopy after 2 consecutive BNA (gl)
P9	Query Glandular Neoplasia	R7	Refer for Colposcopy
		R8	Refer for specialist gynaecology opinion
P10	Broken or Damaged Slides	R6	Repeat Smear 1-3 months




**ICSP** screening could save your life  
**CSR HISTORY CODE CHART**  
OP/F/026 REV. C

<p><b>CYTOTOLOGY PATTERN</b></p> <p>P1 = Unsatisfactory / Inadequate P2 = Negative / NAD P3 = Borderline Nuclear Abnormalities (Squamous) or HPV P4 = Mild Dyskaryosis P5 = Moderate Dyskaryosis P6 = Severe Dyskaryosis P7 = Query Invasive Carcinoma P8 = Borderline Nuclear Abnormalities (Glandular) P9 = Query Glandular Neoplasia P10 = Broken or Damaged Slides</p> <p><b>CYTOTOLOGY MANAGEMENT RECOMMENDATIONS</b></p> <p>R1 = No further screening required R2 = Normal recall R3 = Repeat smear in 12 months R4 = Repeat smear in 6 months R5 = Repeat smear in 3 months R6 = Repeat smear 1-3 months R7 = Refer to colposcopy R8 = Refer to specialist gynaecology opinion</p> <p><small>(As developed from the NCCO QA guidelines 1998)</small></p>	<p><b>COLPOSCOPY APPOINTMENT STATUS</b></p> <p>ATT = Attended CAN = Cancelled DEF = Rescheduled DNA = Did Not Attend OWL = Waiting List SCH = Scheduled</p> <p><b>COLPOSCOPY PROCEDURE</b></p> <p>CCB = Cone Biopsy CPB = Punch Biopsy CRY = Cryotherapy LTZ = LLETZ SMR = Smear SWB = Swabs</p> <p><b>COLPOSCOPY OUTCOME</b></p> <p>CRV = Clinical Review DTH = Death FDC = Discharged RGP = Refer to GP for X Smears SHY = Subtotal Hysterectomy TH = Total Hysterectomy UT = Under Treatment</p> <p><small>(As developed by ICSP and CSR)</small></p>	<p><b>HISTOLOGY SNOMED CERVICAL BIOPSY</b></p> <p>T83000 = Cervix E3345 = HPV M74001 = Kollocytosis M74005 = Epithelial changes, uncertain significance M74006 = CIN 3 M74007 = CIN 2 M74008 = CIN 1 M74009 = CGIN, low or high grade M80715 = Microinvasive squamous cell carcinoma M80703 = Squamous cell carcinoma M81402 = Adenocarcinoma in situ M81403 = Adenocarcinoma</p> <p><b>HISTOLOGY SNOMED CERVICAL CANCER</b></p> <p>T83000 = Cervix M80703 = Squamous cell carcinoma M81403 = Adenocarcinoma T08000 = Lymph node M85603 = Adenosquamous carcinoma M80706 = Metastatic squamous carcinoma M81406 = Metastatic Adenocarcinoma</p> <p>CSR accepts all SNOMED Codes</p> <p><small>(Minimal data set as developed from RCPaH March 2007 standard)</small></p>
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## The capacity implications for a national cervical screening programme

Author - Ethel Egan



Number of females aged 25-60 (inclusive) by county & county borough (2002 census)

**Objectives**

- To identify 2002 census CSD data for women aged 25-60 years.
- To identify population statistics of women aged 25-44 years and 45-60 years.
- To identify target population on a county and regional basis.
- To identify capacity requirements of the 4 different age groups on an annual screening basis.
- To identify an 80% coverage figure for the target age groups.

**Summary**

The overall annual total capacity requirement based on the introduction of an interval of 3 years for women aged 25-44 and an interval of 5 years for women aged 45-60 years is 210,134.

**Conclusion**

Current capacity in the cytology laboratories nationally is over 250,000. The capacity implications of adopting a national policy of 3 yearly screening in women aged 25-44 and 5 yearly in women aged 45-60 is feasible.

**Methods**

The section used the Central Statistics Office census 2002 extracting data for females aged 25-60 years. An Excel spreadsheet was created to identify the relevant data. The four regional Health Service Executive boundaries identify the data on a county basis.

**Smears per year**

	age 25 to 44	80% coverage	3 year screen	age 45 to 60	80% coverage	5 year screen	yearly
<b>Carlow</b>	3832	3066	3677	3992	3194	4334	2089
<b>Clare</b>	9125	7301	8761	9880	7904	10880	4759
<b>Donegal</b>	3298	2638	3165	3594	2875	3939	1824
<b>Down</b>	4622	3700	4440	4871	3897	5297	2462
<b>Dublin</b>	14618	11700	14040	15738	12590	17118	8199
<b>Fingert</b>	3881	3106	3727	4128	3302	4538	2165
<b>Galway</b>	1100	880	1056	1151	921	1258	593
<b>Limerick</b>	3631	2905	3486	3886	3109	4212	1989
<b>Longford</b>	271	217	260	288	230	311	146
<b>Louth</b>	3249	2600	3120	3478	2782	3744	1776
<b>Mayo</b>	2192	1754	2105	2334	1867	2556	1209
<b>Meath</b>	3192	2554	3065	3351	2681	3608	1694
<b>Monaghan</b>	2376	1901	2281	2532	2026	2736	1284
<b>Offaly</b>	2787	2230	2676	2951	2361	3181	1487
<b>Perth</b>	1738	1390	1668	1848	1478	2004	936
<b>Sligo</b>	1208	966	1159	1284	1027	1380	645
<b>Tipper</b>	3666	2933	3520	3900	3120	4224	1992
<b>Wexford</b>	3441	2753	3303	3660	2928	3972	1872
<b>Wick</b>	2719	2175	2610	2880	2304	3072	1440
<b>Wick</b>	1999	1599	1918	2118	1694	2292	1080
<b>Total</b>	146180	117000	140400	157380	125900	171180	81990
<b>Longford</b>	271	217	260	288	230	311	146
<b>Meath</b>	3192	2554	3065	3351	2681	3608	1694
<b>Sligo</b>	1208	966	1159	1284	1027	1380	645
<b>Wick</b>	1999	1599	1918	2118	1694	2292	1080
<b>Total</b>	146180	117000	140400	157380	125900	171180	81990

**ICSP** **HE** Feidhmeannacht na Seirbhíse Sláim Health Service Executive

Appendix 7

Glossary

<b>Cervical Intraepithelial Neoplasia (CIN)</b>	Cervical Intraepithelial Neoplasia is not cancer. It is a histological (examination of a tissue biopsy) diagnosis. It describes varying degrees of abnormality of the cells within and confined to the epithelium (cervical lining or 'skin').  There are three grades of CIN.
<b>CIN I</b>	Mildly abnormal cell characteristics exist. The specificity of cervical smears which suggest the possibility of CIN I is low. The chance of progression to CIN III and or cancer is relatively small and the likelihood of regression is relatively high.
<b>CIN II</b>	Moderately abnormal cell characteristics exist. The specificity of cervical smears which suggest the possibility of CIN II is high. The chance of progression to CIN III and or cancer is relatively high and the likelihood of regression is relatively low.
<b>CIN III</b>	Severely abnormal cell characteristics exist. The specificity of cervical smears which suggest the possibility of CIN III is very high.
<b>Cervical Cancer</b>	Cancer arising from the uterine cervix. By definition malignant cells have spread beyond their natural boundaries (e.g. for squamous carcinoma the malignant squamous cells have spread beyond the squamous epithelium). In other words they have at least broken through the basement membrane of the cervical epithelium. The very great majority (circa 95%) of cervical cancer is of the squamous variety.
<b>Cervical Cytology</b>	Microscopical examination of cells scraped from the surface of the epithelium of the cervix.
<b>Colposcopy</b>	Low power magnification, light illuminated examination of the cervix.
<b>Cone Biopsy</b>	May be performed using a knife, diathermy loop (LLETZ-Cone) or laser beam. It is sometimes performed under general anaesthesia. The procedure is associated with well recognised short and long term morbidity. The chance of long term morbidity is related to how much endocervical tissue is excised.
<b>Dyskaryosis</b>	Term used in cytology to describe nuclear abnormalities in cervical cells. Dyskaryotic cells are classified as mild, moderate and severe and correlate with CIN I, CIN II and CIN III.

<b>Effectiveness</b>	Is the extent to which a screening programme when deployed in practice meets its defined objectives.
<b>Efficacy</b>	Is the extent to which an intervention/programme produces a beneficial result under ideal conditions. Ideally the determination of efficacy is based on the results of a randomised controlled trial.
<b>Efficiency</b>	Is the measure of the result achieved in terms of money, resources and time expended on a procedure of known efficacy and effectiveness.
<b>Incidence (rate)</b>	May refer either to CIN or cervical cancer. It is the number of new cases of CIN/cervical cancer that occur in a defined period divided by the population at risk of experiencing the event during this period.
<b>Local Destructive Techniques</b>	Laser, cryocautery, cold coagulation and radical diathermy. These methods aim to destroy rather than remove the transformation zone.
<b>LLETZ</b>	Large Loop Excision of the Transformation Zone.
<b>Negative predictive value</b>	Is the proportion of test-negative women who do not have CIN. It is a measure of the likelihood that someone with a negative test is actually disease free.
<b>Positive predictive value</b>	Is the proportion of test-positive women who are truly positive. It can be considered a measure of the likelihood that a woman with a positive test truly has CIN.
<b>Prevalence (rate)</b>	May refer to CIN or cervical cancer. It is the total number of women who have CIN/cervical cancer at a particular time (or during a particular period) divided by the population at risk of having CIN/cervical cancer at this point in time or midway through the period.

## Screening Programmes

<b>Systematic screening</b>	Where the target population is invited to have a cervical smear at regular intervals.
<b>Controlled spontaneous</b>	Where there are recommendations guiding the number and frequency of screens that are performed opportunistically.
<b>Opportunistic Screening</b>	Where women have a smear when the opportunity arises (gynae clinics, GP visits, FPC visits).
<b>No screening</b>	This situation exists in some developing countries.



# APPENDICES

<b>Sensitivity</b>	Is the proportion of women with CIN in the screening population who are identified as having CIN by the screening test. It is a measure of the probability that any given case will be identified by the test.
<b>Specificity</b>	Is the true proportion of women who do not have CIN or cervical cancer who are so identified by the screening test. It is a measure of the probability of correctly identifying a non-diseased woman by the test.
<b>Transformation Zone</b>	A junctional arc of epithelium lying between the ectocervical and the endocervical epithelium situated at or near the opening of the cervix.

