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Chlamydia Screening in Ireland: a pilot study of opportunistic screening for genital Chlamydia trachomatis infection in Ireland (2007-2009). Pre-screening Report

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02

CHLAMYDIA SCREENING IN IRELAND

A pilot study of opportunistic screening for genital *Chlamydia trachomatis* infection in Ireland (2007–2009)

PRE-SCREENING REPORT:
STUDY BACKGROUND, ACCEPTABILITY AND FEASIBILITY OF SCREENING

REPORT PREPARED BY CHLAMYDIA SCREENING STEERING GROUP

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Pre-screening Report and Website

This pre-screening report informs the Chlamydia Screening in Ireland Pilot Study conducted between 2007 and 2009. Further information including more detail on the methods and results can be found in the following accompanying reports on the Health Protection Surveillance Centre (HPSC) website.[1]

Chlamydia Screening in Ireland Pilot Study. Summary Integrated Report

Chlamydia Screening in Ireland Pilot Study. Screening Report

Chlamydia Screening in Ireland Pilot Study. Economic Evaluation

Other resources on the website include additional information on the implementation of screening, a toolkit for organising screening in non-clinical settings and links to published articles from the study.

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[1] http://www.hpsc.ie/hpsc/A-Z/HepatitisHIVAIDSandSTIs/SexuallyTransmittedInfections/Chlamydia/Publications/

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Summary

- A series of background studies in 18 to 29 year olds were conducted in a range of primary care settings in Dublin and Galway, 2007-09, to assess the acceptability and feasibility of opportunistic screening for chlamydia:
    - semi-structured interviews with 35 women who had never been tested for a sexually transmitted infection (STI)
    - similar interviews with 30 men and women who had had a STI test
    - a questionnaire survey of 5685 students and 400 primary care patients
    - four focus group discussions with university students
    - semi-structured interviews with eight doctors and 10 practice nurses.
- The most important barrier to seeking or taking a STI test was the stigma young Irish men and women associated with chlamydia and other STIs, and the fear of being seen doing this. This fear was greater among young women.
- Young people, especially women, were aware that chlamydia infection was often asymptomatic and were conscious of the danger of complications such as infertility and the consequences of transmitting chlamydia to other women.
- Factors that would encourage acceptance of a chlamydia screening test, which were common to women and men, were:
    - normalising STI testing, by portraying it as a responsible practice that adults should engage in
    - not being asked questions by staff about their sexual history
    - being offered screening by younger non-judgmental female healthcare professionals
    - being offered screening in private or general health care settings, where others would not be aware that they were getting an STI test
- There was a high level of acceptance of chlamydia screening among young people: 95% said it would be acceptable to be offered a test, and 90% of health facility attendees and 75% of students said they would accept a test if offered.
- The most acceptable setting for chlamydia screening was a General Practice where respondents were most comfortable with being offered screening by a doctor or nurse. Other primary care settings were also acceptable, whereas pharmacies were not because they were seen as public settings.
- 80% said they would inform their current partner if they tested positive for chlamydia, though this fell to 55-60% in the case of previous partners.
- Health care providers (doctors and nurses) viewed chlamydia screening as a priority, because young people are sexually active and are at high risk because of alcohol. Providers anticipated high chlamydia test offers and uptake rates.
- Providers viewed chlamydia testing as a core activity to undertake in primary care, but they would need support for partner notification and easy access to laboratory tests, especially urine-based ones.

Conclusion:

Most 18-29 year old men and women would respond positively if offered a test for chlamydia, when attending a health care facility for other reasons. They recognise the risks and the importance of their sexual contacts being tested, if they themselves test positive for chlamydia. However, sexual health services in Ireland need to minimise stigma and ensure the confidentiality and acceptability of STI testing of young people.

1. Introduction

Chlamydia trachomatis is the most frequently diagnosed bacterial sexually transmitted infection world-wide [1]. Population prevalence of chlamydia in Ireland are unknown. A 2004 systematic review of UK prevalence studies estimated that 4.5% of women under 20 in the general population and 8-17% of women under 20 attending sexual health services were infected [2].

Symptoms may include vaginal or penile discharge and dysuria. However genital infection is asymptomatic in 50-88% of those infected and an estimated 46% of infections clear within one year [1]. Chlamydia infection is most common in 16-24 year olds (international literature) and untreated infection has been estimated to result in pelvic inflammatory disease (PID), which is an infection of the female upper genital tract, in between 10 and 30% of women, 10-20% of whom will develop tubal infertility. *Chlamydia trachomatis* has been implicated in around 30% of cases of PID [3].

A recent randomised control trial of screening in the UK found that most episodes of PID were in women who tested negative for chlamydia at the start of the 12 months [4].

In men, *Chlamydia trachomatis* is the most common cause of non-gonococcal or non-specific urethritis. Untreated male infection can cause epididymitis, urethritis and Reiter's Syndrome, a form of arthritis. It is considered biologically plausible that chlamydia could cause male infertility. However, there is no consistent epidemiologic evidence [5].

Chlamydia is easily and effectively treated, through a single dose of an antibiotic (azithromycin) taken orally.

Chlamydia screening programmes are in place in several European countries and in the United States of America (USA) [1]. ***Opportunistic screening*** is the most common model, where young men and women are invited to provide a specimen, when they visit a suitable setting such as their general practitioner (GP), usually for an unrelated reason. Large scale opportunistic screening programmes have been rolled out in the UK and USA [3,6] .

Register-based screening, where eligible individuals in a target population are invited for screening, is being piloted in the Netherlands since 2008. However, the evidence to support either approach as a population chlamydia control measure is not yet adequate [3,7].

The European Centre for Disease Control guidance document on chlamydia control in Europe [7] has outlined a chlamydia control framework with four levels, where each level builds on the previous one:

Level A *primary prevention*: health promotion, school programmes and condom distribution

Level B *case management*: surveillance, diagnostic services, clinical services, and patient and partner management services

Level C *opportunistic testing*: offering chlamydia tests to people attending clinical settings for other reasons, so as to identify and treat asymptomatic cases

Level D *screening programme*: "This build on Level C with the addition of the organised provision of regular chlamydia testing to cover a substantial

proportion of a defined population, with the aim of reducing chlamydia prevalence in the population".

The report states that decisions on moving from one level of control to the next should be based on "a rigorous appraisal of the evidence for effectiveness, cost-effectiveness and harms", and the aim of the guidance document is to facilitate "the development of local, evidence-based guidelines within the context of sound national chlamydia strategies. Such strategies need to take account not only of clinical and epidemiological factors (such as the prevalence of chlamydia in the population) but also of local systems of healthcare delivery, infrastructure and resourcing" [7].

The Republic of Ireland does not have an organised national or regional opportunistic screening programme and the necessary information required to design such a programme was not in place. This report is the result of a two year pilot study, which investigated the feasibility, acceptability, effectiveness and cost-effectiveness of opportunistically offering screening in clinical and non-clinical settings that are frequented by young people.[2]

This report presents the views of young Irish women and men who would be the targets of such a programme, and the views of service providers who would be offering screening. The Chlamydia Screening in Ireland (CSI) Pilot Study also reports an analysis of the effects – numbers of persons tested, test positivity rates, numbers of cases and contacts treated – (Pilot Screening Programme Report) and the cost effectiveness of offering chlamydia screening (Economic Evaluation). The target population was 18-29 year olds who were offered urine-based screening when visiting primary care settings or attending Third Level Higher Education Institutions (henceforward called HEIs or colleges).

1.1 Overview of research project

In late 2006, the Health Protection Surveillance Centre (HPSC), through the Health Research Board (HRB), invited proposals to identify the optimal model for chlamydia screening of men and women attending primary care or other settings in Ireland. The HRB specified that the study should examine the feasibility, acceptability and costs of a screening programme, taking into account service provider and patient perspectives.

A proposal from a team of public health and other specialists from the Royal College of Surgeons in Ireland (RCSI), the National University of Ireland Galway (NUI Galway) and the Health Service Executive (HSE) was selected, following a competitive tendering process. The project, in two phases, proposed to:

- develop a focused evidence base of public and professional perspectives on screening young people for a sexually transmitted infection (STI)
- design appropriate service models based on identified enablers and barriers to service uptake
- pilot and evaluate the feasibility and effectiveness of these models in a variety of non-specialist settings such as urban and rural general practices (GP),

[2]Chlamydia Screening in Ireland (CSI) Summary Integrated Report

Chlamydia Screening in Ireland (CSI) Pilot Screening Programme Report

Chlamydia Screening in Ireland (CSI) Economic Evaluation

student health units (SHU) and a family planning clinic (FPC). A non-clinical setting using a 'pee-in-a-pot' model was also proposed.

An economic evaluation was added later.

Challenges to be addressed included:

- getting people (service users and providers) to engage in addressing a 'new' STI
- convincing those at most risk (especially adolescents and those in their early 20s, who often feel 'invulnerable') to accept a test in the absence of symptoms
- encouraging testing across both sexes for a condition that has most direct impact on women (in terms of infertility) and at a time relatively far into the future, and
- design screening models that take into account the constraints on primary care providers, genitourinary medicine (GUM) clinics and laboratories.

Issues of ***acceptability*** to young people to be explored included:

- whether inconvenience, cost, stigma, embarrassment, consequences of a positive test for one's relationships, or denial would be barriers to uptake of screening; and how such barriers could be minimised/eliminated
- preferences for or against particular health service settings for accessing STI screening services
- preferences for or against primary care (GP / SHU – Student Health Unit) versus specialist sexual health service models for treatment and follow-up
- preferences for or against client/patient partner notification and/or contact tracing models; and how barriers to the public health dimensions of STI/chlamydia control and service uptake can be overcome.

The ***feasibility*** issues to be explored with health care providers included:

- design of screening models that would meet providers' (GPs, managers of SHUs and FPCs, managers in other settings) concerns around impact on workload
- models of patient/client management and partner notification or contact tracing

A ***cost-effectiveness*** study was added to the study through additional funding provided by the HPSC at the end of the pre-screening period, enabling a more detailed costing and economic evaluation of the processes and intermediary outcomes of the pilot programme, from a provider perspective. This was conducted by economists based at NUI Galway.

1.2 Challenges of screening for chlamydia in Ireland

The ***Irish Study of Sexual Health and Relationships*** [8] had identified several challenges to STI control:

1) Levels of knowledge about chlamydia are low: 73% of women and 54% of men reported they had previously heard of chlamydia. When questioned further, 44% of this group thought chlamydia was a symptomatic condition.

2) Levels of diagnosed STIs are low – 3.4% men and 1.8% women reported ever having had a STI, which is likely to reflect a low level of awareness of the need for testing for asymptomatic STIs and a tendency to feeling invulnerable [8].

3) Increasing numbers of sexual partners, with numbers in younger age groups reaching levels seen in other countries, implying a likely unmet need for STI detection

4) Social barriers to STI testing are high: younger and less educated people reported that it would be difficult to discuss sexual problems with a professional, with higher proportions of young men reporting this difficulty: 45% of men compared with 37% of women aged 18-24 (unpublished ISSHR data).

Challenges identified in other research projects include:

1) Low ***GP attendance rates*** among young males – The SLAN Study 2007 showed that males aged 18-29 years had lower GP attendance rates than females (53% and 82%) [9]. This implies that opportunistic approaches need to extend beyond GP settings.

2) ***Service capacity*** is limited – with a clear need for provision of additional resources [10].

3) Extensive ***staff training*** is needed: Irish GPs view STI management as the area of greatest need in terms of up-skilling [10]. In an ICGP report on women's heath services, 68% of GPs surveyed (n=444) reported needing further education/training on STI management [11].

1.3 Epidemiology in Ireland

Chlamydia trachomatis is a notifiable disease in Ireland. The number of notifications increased from 245 in 1995 to 1,278 in 2003. After 2004 when legislation requiring laboratory notification came into effect, the number further increased to 6,290 in 2008 [12].

Chlamydia trachomatis is now the most commonly notified STI in Ireland (55.7% of all STI notifications) [12]. This rise is believed to be due to a combination of factors: a true rise in the rate of infection, greater awareness of chlamydia infection among healthcare providers,, and the use of Deoxyribonucleic acid (DNA) amplification methods. These methods are capable of detecting asymptomatic infection, are more sensitive than other methods, and can be used on specimens such as urine that can be collected non-invasively.

Ireland had a crude incidence rate for chlamydia of 148.4 per 100,000 population in 2008 [12]. The incidence rate for the Western area (former Western Health Board) where this screening project was piloted was 127.7. The majority of notified cases of infection in Ireland (61%) are among 20–29 year olds. People aged 0-19 years and those aged 30-39 years each account for 13% of notifications. The limited published Irish prevalence/positivity data are summarised in Table 1.

Table 1. Published studies on chlamydia prevalence and positivity rates in Ireland

Males:	**Prevalence CT**	**Significant risk factors**
Males attending out patient service or third level sports arena [13]	5.9% (95% CI: 3.6- 8.2)	• >1 sexual partner in the last 6 months, • >8 lifetime partners, • Current symptoms
Females:		
Female HEI students attending 3 SHUs [14]	4.8% (95% CI: 3-7)	• Current suggestive symptoms, • 2/> one-night stands • 3 or >lifetime sexual partners.
Females attending antenatal, infertility clinics and family planning clinics [15]	3.7% (35/945) with 11.2% (22/196) in those aged < 25 years	• Single-status • Age <25 years
Combined positivity rates		
STI clinics [16]	9.5%	
The Well Woman Centre [17]	Range 1-20%* 20% found in women aged < 20 years of age. *Note: This includes asymptomatic and symptomatic cases	

Major knowledge gaps in the epidemiology of chlamydia in Ireland include:

- Prevalence rates in important populations are unknown: GP attendees, women not attending healthcare services, prisoners and men etc.
- Risk factor data to guide selective screening programmes.

1.4 Rationale for screening

Chlamydia trachomatis infection of the genital tract is of public health importance. Because most cases (50-88%) are asymptomatic, the infection is transmitted sexually without the knowledge of either partner. Those infected do not seek investigation and treatment, and potentially severe long-term complications can occur, such as:

- Tubal infertility in women due to pelvic inflammatory disease (PID) and possibly male infertility due to epidymo-orchitis.
- Chlamydia infection during pregnancy can cause miscarriage or premature birth.

- Babies born to mothers with infection of their genital tract may develop chlamydia eye infection within a week of birth (chlamydia ophthalmia neonatorum), and may subsequently develop pneumonia.
- Increased risk of transmission of Human Immunodeficiency Virus (HIV).

What is screening?

Screening is a process where unrecognised disease is identified by tests that can be applied rapidly on a large scale. The UK National Screening Committee has identified criteria for any screening programme [18].

The general benefits of screening are:

- Where screening test positive:
    - Less radical treatment due to early diagnosis
    - Improved prognosis for some
- Where screening test negative:
    - Reassurance.

However, it is important that people have realistic expectations of what a screening programme can deliver. Screening can reduce the risk of developing a condition or its complications, but it cannot offer a guarantee of future protection. Screening comes at a cost, especially from the perspective of whoever is paying for the screening – and more broadly for whoever is paying for the health service where the screening is offered. Other costs can also be incurred by the person offered the screening, especially if the disease being screened for is a STI that can have stigmatising effects.

1.5 Screening in other countries

In Sweden, opportunistic chlamydia screening and mandatory partner notification have been widespread since the 1980s, although not organised at a national level. Initially declines were seen in rates of diagnosed chlamydia, PID and ectopic pregnancy. However, surveillance data show rising rates since 1997 [7].

In England, chlamydia screening was introduced in 2003 and rolled out across the country in three phases by 2007. Screening tests are offered opportunistically to sexually active women and men aged below 25 years old attending selected healthcare settings, including pharmacies and contraceptive clinics, and through outreach activities at universities, sporting events and prisons [6]. By late 2008, 370,000 screening tests had been reported, 29% of which were in men. Staff of the National Chlamydia Screening Programme, based at the Health Protection Agency in London, advised on this Irish pilot study.

In the United States, there are organised chlamydia control activities with national coverage that show characteristics of screening programmes [19]. The infertility Prevention Programs in the ten Health and Human Services Regions aim to offer chlamydia screening to young women less than 26 years old, attending public family planning clinics [7].

In Europe, six countries offer opportunistic testing but to different groups. For example, in Iceland chlamydia testing is offered to women who have an abortion. Nine countries are planning opportunistic screening programmes compared with one (Norway) planned as a proactive, register based programme [7].

Systematic, population-based register screening is being rolled out to target 315,000 16-29 year olds in three regions of the Netherlands since 2008, using a cluster randomised study design (2007-10). In the first year, participation rates of 16% were achieved (lower in men and in lower age groups).

1.6 Chlamydia Screening in Ireland Pilot Study

This report summarises most of the findings of the *pre-screening* research conducted in Ireland between 2007 and 2009. It consisted of a series of sub-studies focusing on the acceptability and feasibility of opportunistic screening from the perspectives of service users and service providers in different settings in Dublin and Galway. An opportunistic screening model was designed and tested because the absence of a unique identifier for health service users in Ireland precluded a systematic or register-based screening approach.

Qualitative followed by quantitative studies were undertaken with health service users, and potential users in the case of students across seven HEIs (Third Level institutions) in Ireland who completed an intranet questionnaire. The results of the Pre-screening Study informed the design and roll out of the pilot screening programme in Galway.

The rationale for this approach was that an understanding of the factors that would prompt people to accept or not accept the offer of a test for a sexually transmitted infection (STI), and the factors that would influence providers to offer or not offer at test, were fundamental to the design of a screening programme.

The project which commenced in 2007, was designed and implemented by a Steering Group (core and expanded groups), comprising staff at the RCSI, NUIG and HSE, guided by an National Advisory Group (see Summary Integrated Report).

2. Methodology

The target population for the pre-screening studies were young adults aged between 18 and 29 years, which was the age range with the reported highest prevalence of chlamydia in Ireland and had shown the greatest increase in incidence of STIs in the previous decade. Legal advice precluded the inclusion of those under 18 years in the pilot study.

Ethical approval was obtained for the studies from the following committee:

- Irish College of General Practitioners
- Royal College of Surgeons in Ireland
- University Hospitals, Galway
- National University of Ireland, Galway
- Dublin Institute of Technology

2.1 Interviews with young women who had never had an STI test

Semi-structured interviews were conducted with 35 women aged 18–29 years who were recruited from six GP settings and two Family Planning Clinics (FPCs): two GPs and one FPC in Dublin; and three GPs (two urban and one rural) and one FPC in Galway. Settings were purposively selected based on: a) being typical of settings and target groups that would be likely to offer opportunistic screening if it was introduced in Ireland; and b) willingness of staff to facilitate the study.

Health service managers (GPs or practice nurses) in each setting provided eligible young people visiting the service with an information sheet, which included contact details of the interviewers for them to get in touch with, if they were willing to be interviewed.

2.2 Interviews with service users who had previously attended STI services

Semi-structured interviews were conducted with 30 young adults (21 women, 9 men) who had previously attended health services for STI testing in Ireland. Respondents were recruited from GP practices, Student Health Units (SHUs) in two Higher Education Institutions (HEIs), FPCs and specialist STI treatment services for men who have sex with men (MSM).

A researcher trained in qualitative methods undertook 30 of the 35 interviews in primary care settings – the rest were conducted by a public health specialist. The same researcher conducted all of the 30 interviews with STI service users.

The objectives of these interviews were:

a) to identify, explore and understand -
   - the factors that would encourage or deter young people from accepting an offer of screening (2.1)
   - STI service users experiences with primary care (GP and FPC) and specialist genitourinary medicine (GUM) STI services (2.2)

b) to inform the design of structured questionnaires (2.3) and

c) to use young people's perspective in the design of health promoting messages to encourage young people to accept screening.

Interviews lasted 60 minutes on average, were tape-recorded (with respondents' permission) and transcribed. Thematic analysis was conducted by the qualitative researcher using standard methods, with coding and the results of the analysis reviewed by at least one other researcher.

2.3 Self-administered structured questionnaire survey of 18-29 year olds

A short structured self-administered questionnaire and information sheet were designed by the Steering Group and piloted in one HEI. They were delivered on-line, using 'survey monkey', to students in five other HEIs in the Republic of Ireland. The mode by which the student body was made aware of the survey varied. The most effective method was when students were sent a circular email by the College authorities, which contained a hyperlink to the online version of the questionnaire

A similar information sheet and questionnaire with additional questions on factors that might influence respondents' decision on screening was piloted in a GP practice. A survey was then conducted of eligible 18-29 year olds attending 13 GP practices in the West of Ireland (9 rural and 3 urban), one college health practice and one GUM Clinic. This was a convenience sample and refusal rates could not be calculated (Practice staff handed eligible attending patients a survey pack, including an information sheet and questionnaire; and were unable to identify who did not complete the questionnaire.

Recruitment continued until 400 responses (completed questionnaires) had been obtained.

These surveys measured respondents' views and preferences on the acceptability of chlamydia screening, preferred settings, preferred type of person to offer them the test, preferred methods of receiving test results and (if necessary) treatment, preferred method of notifying partners if test positive, and willingness to pay for screening. The resulting data set was imported into SPSS for analysis.

2.4 Focus groups discussions with third level students

It was decided to design, implement and evaluate a 'pee-in-a-pot' programme in two HEIs. There, students would have the opportunity to be screened for chlamydia during these colleges' sexual health awareness weeks for students.

Students were invited to participate in focus group discussions in each college, to get their views on how best to offer 'pee-in-a-pot' screening to students, outside of clinical settings. Recruitment was assisted by the local Student Unions and email advertisements through the student intranet.

Focus groups were conducted by the research health advisor (RHA) and a public health specialist based in the Galway region. All participants were volunteers and received a €10 voucher for their participation in the discussion. Group sizes were on average 8-12 and group discussions were held on campus. One male and two female group discussions were held in two different college campuses. Discussions were audio-recorded and transcribed; transcripts were analysed and conclusions were drawn which helped to inform and finalise the 'pee-in-a-pot' event and material (screening packs) design.

2.5 Pre-screening interviews with healthcare providers

Health care professionals based in the Galway region, where the pilot study was planned, were purposively invited to participate in tape-recorded semi-structured interviews, which were conducted by the research health advisor. The purpose was to inform the screening models and explore providers' views of chlamydia screening in primary care. A topic guide based on relevant literature was used to guide the interviews, which were transcribed and thematically analysed.

3. Findings

3.1 Interviews with young women who had never gone for STI testing

The most important barrier articulated by these 35 women was the stigma that they associated with chlamydia and other STIs. Most respondents had generally conservative opinions about how they wanted opportunistic screening services to be offered, preferring that they be located in traditional medical settings (e.g. GP practices) and to be offered screening by trained medical personnel.

Factors that would encourage them to accept screening included;

- Provision of free screening
- Normalizing screening (not offering screening on a risk factor basis),
- Being offered screening by younger non-judgmental female healthcare professionals
- Communicating to students that accepting an offer of chlamydia screening is a positive, healthy and responsible practice.
- Offering screening in private places (for more on these young women's screening location preferences see: http://www.ncbi.nlm.nih.gov/pubmed/19744875).

These characteristics would serve to frame chlamydia screening as a normal 'check-up' activity undertaken by responsible individuals, and would serve to counteract the opposite interpretation (which they feared), which was that screening is a potentially stigmatizing activity undertaken by individuals with risky lifestyles.

Offering screening on a risk factor basis, that is if they were asked questions about their numbers of sexual partners and any risky behaviours, would make these young women less likely to accept an offer of screening (for more on young these young women's attitudes towards risk factor screening see: http://www.informaworld.com/smpp/content~db=all~content=a921626572~frm=titllelink?words=balfe&hash=3210076980).

Respondents' partner notification preferences were in line with those expressed in other international qualitative studies. Most respondents' indicated that they would prefer to inform their current partners themselves if they tested positive for chlamydia. However, they also acknowledged that they would be less likely to inform their previous partners, demonstrating the importance of embedding contact tracing in any opportunistic screening programme (more on respondents' partner notification preferences is said at: http://www.biomedcentral.com/1471-2458/10/425).

Young women spoke of the importance of partner notification in terms of the damaging effects that refusing to inform ex-partners could have on other women who had sex with their ex-partners, and the possible consequences on these women's fertility. They generally empathized more with other young women than with men (including their male partners). This suggests that the benefits to other young women's fertility (as well as their own) could be used as a way to promote partner notification among women with STIs.

Young women were not homogeneous in their attitudes towards screening and screening barriers: younger women (in their teens) and those from working class and rural areas had particularly strong STI-related stigma concerns. Some young women,

especially those in rural areas, feared that if they presented to their local GP with fears or symptoms suggestive of a STI, this could evoke a negative judgemental reaction, especially if he was an older man.

Anxieties about confidentiality and stigma were a major concern. Young women recruited in urban GP practices, especially, feared getting a reputation among their peers as promiscuous, if they were seen to be frequenting a setting where STI screening was on offer. In rural areas, young women expressed concerns about possible breaches of confidentiality, if the GP or practice staff knew their parents.

These findings pointed to the importance of provider training and education, and of the configuration of the clinical (and any non-clinical) settings where screening is offered to young women, so as to minimise and avoid the risk of stigma. In situations of limited resources, one might target resources at removing stigma barriers that deter at-risk young people from using primary care as well as GUM services for their sexual health needs.

Generally, a GP or family planning clinic delivered service was preferred by young women, some of whom expressed a preference to be informed and offered screening by young female doctors and nurses, who were seen as less likely to be judgemental. Screening offers in pharmacies and by non-clinical professionals or receptionists, where confidentiality could not be assured, would be a disincentive to accepting screening.

3.2 Interviews with service users who had previously gone for STI testing

Five test-promoting factors were identified from these interviews with these 21 women and 9 men.

(i) Viewing STI testing as a responsible practice that adults should engage in.

(ii) Having a protective orientation towards partners and other young adults. All respondents' indicated that they would experience significant guilt and distress if they transmitted an STI to another individual. STI transmission was viewed as a fundamentally unjust activity.

(iii) Both male and female respondents were concerned about the damage that STIs could do to their future fertility, indicating awareness of important complications in this at-risk group. STI testing was seen a crucial means of protecting this fertility.

(iv) Perceived risk status of respondents' sexual partners. Partner's risk was assessed by a range of characteristics, including appearance, geographical origin, and past sexual history.

(v) Those who did not have symptoms when they attended testing expressed anxieties about the risk that asymptomatic STIs (especially chlamydia) could affect them without their knowledge. Anxieties about symptomless STIs stemmed from two sources: consciousness-raising health promotion materials and knowing other individuals who had been diagnosed with STIs (more information on test-promoting factors for these young adults is contained at the following link: http://www.biomedcentral.com/1471-2458/9/311).

Based on these interviews, in the screening pilot we emphasized to young people that screening was a positive and healthy activity that was beneficial to society; that STI-related risk could not be visually detected and assessed; and that they young people

could have STIs without them being aware of it. These messages were intended to promote screening uptake by young adults.

Despite the benefits that these respondents associated with STI-testing, they were also concerned about STI-related stigma. These were often very careful about how they accessed information about STIs and STI testing (concerned about the risk of other people seeing them doing so), and often sought STI testing in venues where they felt that they would by unlikely to run into people whom they knew, because STI testing was (for them) a secret, hidden activity. They often described feeling very self-conscious while accessing STI-testing facilities (more on these young people's feelings of self-consciousness and stigma is found at this link: http://www.biomedcentral.com/1756-0500/3/229).

Respondents felt especially self-conscious while waiting in clinic waiting rooms. Most kept their STI testing practices secret from other people, including families and friends, so that they could manage stigma and continue to maintain their social identities as 'normal' individuals. Keeping their STI testing practices a secret from was often difficult and emotionally draining.

Healthcare professionals were one of the few groups to whom respondents felt comfortable disclosing their need for STI testing. However, about one third of them reported experiencing stigmatizing reactions from healthcare professionals, which made them reluctant to seek treatment for their STI. Conversely, there was also evidence that healthcare professionals who put an effort into making respondents feel secure and at ease could have a positive impact on respondents' interpretation of the STI-testing process, and reduce their feelings of shame, stigma and embarrassment.

3.3 Self–administered structured questionnaire survey of 18-29 year olds

In the primary care settings, 400 18-29 year old respondents were recruited: 306 (76%) females and 144 (24%) males, with an average age of 24 years. In the intranet survey, 5685 students participated: 3400 (60%) females and 2285 (40%) males, with an average age of 21 years.

Table 2. Sexual behaviour and risk factors

Question	**Students** **Males**	**Intranet** **Females**	**Primary** **Males**	**Care** **Females**
Had sex in the past year	n (%)	n (%)	n (%)	n (%)
with 1 partner only	709 (40.2%)	1599 (52.9%)	18 (32.1%)	176 (65.2%)
with 2 or more partners	657 (37.2%)	775 (25.6%)	31 (55.4%)	68 (25.2%)
No	280 (15.9%)	469 (15.5%)	2 (3.6%)	19 (7%)
-Prefer not to say	118 (6.7%)	180 (6%)	5 (8.9%)	7 (2.6%)
Had sex with new partner in last 3 months	n (%)	n (%)	n (%)	n (%)
Yes	600 (34.1%)	684 (22.6%)	31 (55.4%)	52 (19.2%)
No	1066 (60.6%)	2200 (72.8%)	20 (35.7%)	211 (77.9%)
-Prefer not to say	93 (5.3%)	136 (4.5%)	5 (8.9%)	8 (3%)

Respondents differed from the population-based Irish Study of Sexual Health and Relationships (ISSHR 2006) survey in some important respects, notably: 32% of the chlamydia survey respondents (students and primary care attendees) reported two or more sexual partners in the previous year compared with 21% of ISSHR respondents who responded positively to the same question.

The difference in reported sexual behaviour by sex, in this study, was most marked in primary care settings, where male respondents (55%) were more than twice as likely as female respondents (25%) to have had sex with two or more partners in the previous year. A quarter of female respondents reported this risk factor in both surveys and 37% of male students reported two or more sexual partners in the previous year.

Willingness to be screened:

Around 95% of students and healthcare attendees reported that they would find it acceptable to be offered chlamydia screening and most (75% of students and 91% in healthcare settings) would accept a screening test if offered one (see Table 3):

There were some differences in the responses between the two samples and between male and female respondents, which were sometimes statistically significant. For example, those already attending a health care setting and women expressed more positive views about chlamydia screening than did students and men. However, the differences were generally small.

Table 3. Willingness of respondents to be screened for Chlamydia.

Question	**Students**	**Healthcare facility attendees**	**P value (students v. patients)**	**Males**	**Females**	**P value**
Chlamydia test acceptable to	n (%)	n (%)		n (%)	N (%)	**(males v. females)**
-Yes	4682 (94)	382 (96)	Chi= 4.9; p= .087	1881 (96.2)	3183 (92.9)	Chi= 31; p= .000
-No	72 (1.4)	7 (1.8)		28 (1.4)	51 (1.5)	
-Undecided	228 (4.6)	9 (2.2)		46 (2.4)	191 (5.6)	
Would take a Chlamydia test if offered one?						
-Yes	3632 (75.5)	358 (90.9)	Chi= 48; p= .000	1343 (72.1)	2647 (79.3)	Chi= 36; p= .000
-No	534 (11.1)	14 (3.5)		247 (13.3)	301 (9)	
-Undecided	643 (13.4)	22 (5.6)		273 (14.6)	392 (11.7)	

Attendees were asked with respect to a range of factors if each would 'affect your willingness to take a test'. For each factor, more than three quarters of respondents reported that it would not (negatively) affect their decision to accept a screening offer. The most common factors that might deter them were: cost (24% of respondents), embarrassment (22%), having to tell their current partner (17%) or tell a previous partner (12%), inconvenience (14%) and worry (12%).

Primary care attendees were generally more positive about paying for a chlamydia test: 65% said they would and only 17% said they would not pay. Students were more equivocal: only 44% of students reported that they would take a chlamydia test if they had to pay for it, 25% said they would not and 31% were undecided.

Preferred setting and 'screener':

When offered a choice, one's own home was the preferred setting for taking a test as expressed by 50% of students and 48% of health service attendees. This was followed by testing at a health care setting (36% of students and 44% of attendees), and taking a test in either setting (10% and 6%).

There was a reluctance to be tested in a non-health care setting (ie. workplaces, gyms and concerts), which was only acceptable to 4% of students and 2% of health care attendees. Women's and men's responses were similar, with the former the most negative about non-health care settings (1% and 3%).

Respondents were asked about the acceptability of different health care settings for screening (see Table 4). GP practices were acceptable to primary care attendees

(61%) and students (68%), who also reported student health services as acceptable (69%). GUM / STI clinics were generally acceptable to the students (56%), though less so to those respondents who were recruited in primary care (20%)

Table 4. Preferred settings for screening

Settings where screening services should be located:	Students n (%)	Health care facility attendees n (%)	P value (Students v. health care	Males n (%)	Females n (%)	P value (Males vs. females
GP	3875 (**68.2)**	243 (**60.7)**	Chi= 9; p= .003	1524 (**64.1)**	2594 (**70)**	Chi= 23; p= .000
Family planning	2779 (**48.9)**	85 (**21.3)**	Chi= 113; p= .000	713 (**30)**	2151 (**58)**	Chi= 457; p= .000
GUM/STI clinic	3189 (**56.1**)	84 (**21)**	Chi= 183; p= .000	1106 (**46.5)**	2167 (**58.5)**	Chi= 83; p= .000
Gay men's health clinic	1360 (**23.9)**	32 (**8)**	Chi= 53; p= .000	471 (**19.8)**	921 (**24.9)**	Chi= 20; p= .000
Student health clinic	3939 (**69.3)**	81 (**20.3)**	Chi=399; p= .000	1419 (**59.6)**	2601 (**70.2)**	Chi= 71; p= .000
Pharmacist	405 **(7.1)**	36 **(9)**	Chi= 1.7; p= .194	175 (**7.4)**	266 (**7.2)**	Chi= .045; p= .833

Respondents were asked separately about the acceptability of a Pharmacy or Chemist's premises as a setting for screening. Most (230 or 57% of) primary care attendees had used a Chemist in the previous year, but only 27 (12%) of these considered this a suitable setting for screening. Only 189 (5% of) students reported having used a Chemist in the previous year (almost all [182] of these were female students). Only 13 (7%) of these considered this a suitable setting for screening.

The great majority of respondents (70-80%) had a preference for a health professional (doctor or nurse) to offer them screening; and around 95% said that they would not be comfortable if it was receptionist who made the offer. About two thirds of female respondents among both groups preferred a female health professional to offer them the screening test, whereas a similar proportion of male respondents had no gender preference.

Receiving results and treatment

A range of options were offered to respondents for receipt of a negative result, among which a 'mobile phone call' was the most popular (33-35%), followed by email (16-25%), with SMS text (9-10%) less popular than the person phoning for the result (15-20%).

In the case of notification of a positive result, respondents indicated a strong preference to be called on their mobile phone (50-53%), with far fewer (5-7%) opting for a text. Most respondents (59-60%) preferred to call in to the GP or nurse to receive their treatment, with fewer (22-26%) preferring to have the prescription posted out to them.

Partner notification preferences

Similar proportions of both sets of respondents reported that they would be willing to have their current partner informed if they themselves were diagnosed with chlamydia (77-82%); and most (87-88%) would prefer to tell their current partner themselves about the result.

There were lower response rates across the two samples with respect to informing previous partners (53-59%) and to taking responsibility for telling previous partners themselves (54-60%). 60% of students and 76% of primary care attendees reported that they would be happy to receive reminders about attending for chlamydia screening.

*3.4 F*ocus groups discussions with third level students

The findings of the one male and two female focus groups held on the two HEI campuses are as follows, and are consistent with the findings of the qualitative and structured interviews.

Offering the test

When participants were asked about how they would feel about being offered a screening test by their local GP, most felt it would provoke '*a mixed reaction'* such as: '*why are they asking me?'* However, most participants felt it was acceptable to be offered a test during a general consultation, if accompanied with an adequate information leaflet.

The doctor's communication style was perceived as important, with participants preferring an encouraging supportive approach as opposed to being instructed to take a test. Framing the test offer as being part of a wider official screening programme was considered important.

Participants reported feeling sensitive to provider perceptions of them if they accepted the test offer. Male participants discussed their anxieties about taking the test, which were mainly about the perceived invasive nature of testing methods.

The information gap

Lack of information about chlamydia and testing methods was perceived to be a major barrier in preventing young men in particular from taking the test. Male participants reported, being self-conscious about reading educational material in public areas such as a GPs 'waiting rooms. Participants agreed that perceptions about STIs were often based on what is portrayed on TV which is often '*not an educated view'*, where STIs are '*blown out of proportion'*.

Partner notification

While both male and female focus groups raised similar concerns about telling previous sexual partners of their diagnosis, female participants were more likely to tell previous partners. Whereas, their male counterparts reported less feelings of responsibility for previous sexual partners. The main deterrents for male participants were unease associated with telling previous partners and potential threats to personal relationships.

These students had misinformation and held misconceptions about partner notification and were unsure of the methods of contact that were available to them. Fears about having to supply contact details on sexual partners to providers was especially prominent for males. For men, this would be a deterrent to accepting testing.

Settings

Participants reported the best place to offer screening was general practice or student health services. Male participants in particular felt a screening programme was more likely to be successful in a student health setting, because many participants would not want to attend their local GP for a STI test. Fears around compromised patient confidentiality and an *'over familiarity'* with local GPs were discussed.

During the focus groups participants were distributed sample testing kits that could be used for a potential screening campaign in third level institutions. When asked about offering screening around student campuses, respondents perceived this to be '*a good idea especially during the sexual health and awareness week*'. Participants felt screening on-campus would be a good way to '*raise awareness'.*

Privacy

Many students stressed the need to preserve participants' privacy as it was important for participants to maintain their privacy in front of their fellow peers – testing was perceived to be *'a private issue'*. Participants felt having testing kits available in toilets could minimise testing being '*so public'* and could be '*a very confidential way'* of conducting the screening.

Anonymous testing

Participants discussed the need for testing packs to be '*simple and clear'* with minimal information so that students could read them quickly. Having the testing anonymous was seen as pivotal to the success of any programme as *'students would simply not go for it*' if they have to give name or addresses.

When asked about receiving test results, participants deemed it acceptable to give their mobile phone number for negative test results to be texted (this was different to the response in the student intranet survey). Language and wording needed to be tailored to protect participant's privacy.

Other non-clinical settings

Other innovative approaches were explored with participants such as posting testing kit packs and outreach screening in social entertainment setting such as pubs. Responses to these strategies were lukewarm or negative particularly in relation to entertainment settings with most feeling this was impinging on their privacy and inappropriate to these events. Participants were concerned that there would be high alcohol consumption and that these venues were simply too public for testing.

Views on health promotion materials

Students wanted health promotion materials to be made '*real and relate to people's lives'*. Materials and messages needed to be presented in a positive way with the use of '*light hearted'* and informal approaches being a good way to attract attention. Participants felt the most important messages for advertising a screening campaign were that it was '*free, easy and confidential'*. The use of media such as local radio and posters were seen as important mediums to advertise screening.

3.5 Pre-screening interviews with health care providers

Eighteen providers were interviewed: eight doctors and ten practice nurses from general practices, student health units and family planning clinics. Overall, there was widespread recognition among providers on the need for and benefits of screening in the target population (18-29 years).

Providers were concerned that this age group was particularly vulnerable to infection due to high risk lifestyles. Young people were seen by providers as being '*very sexually active'* with high alcohol consumption and low levels of responsibility regarding safe sexual practices. Approaching the topic sensitively was seen as crucial to avoid causing offence to patients. Most providers felt the screening test offer should be integrated into a general consultation.

Potential barriers to recruitment

Just under half of participants felt that partner notification was a barrier to any screening programme in primary care. Lack of resources such as time and personnel would prevent effective and comprehensive partner notification.

Many providers also reported lack of time as a potential barrier to offering the test during busy clinic schedules. Counselling patients and explaining the consequences of a positive result during the consultation was seen as labour intensive and time-consuming.

Three providers felt that offering testing to male patients was more difficult than with their female counterparts as young men *'rarely attended general practice'.* Providers were enthusiastic about urine testing as a fast and efficient testing method, especially for males.

Anticipated high screening rates

Providers were optimistic and enthusiastic about anticipated screening rates, especially among women, prior to the pilot screening programme. Providers commonly reported seeing a large proportion of the target age group and anticipated high uptake in patients. Five providers, who agreed to participate in the screening pilot, anticipated fifty screening tests per month, six providers anticipated twenty to forty screening tests per month and one student health unit predicted '*200 a month minimal'.*

Test results

While providers had varied systems and protocols for giving test results to patients, most felt 'a medically trained' member of staff is the most appropriate person to give results. The trained personnel could either be nurses or doctors but most providers favoured that the person who had initially offered the test should give the test result.

All providers believed that patients who tested positive should return to the place of testing for treatment and follow-up. While a minority of providers felt a doctor was the most appropriate person to give positive results, many agreed the nurse could easily give results if trained and comfortable doing so.

Overall, participants agreed that patients should be given a choice on how they would like to receive their test results. A third of providers considered that sending text messages was an acceptable method for results- this was based on the use of suitable wording and measures to protect patient identification.

Treatment

The majority of the providers felt the doctor or the nurse was the most appropriate person to give health advice. Lack of confidence in dealing with sexual health issues was perceived as a barrier for many. The remaining five providers felt *'a trained health advisor with a bit more of a background*' was required for any future programming.

Partner notification

Based on the interviews, the extent to which partner notification was being carried out in general practices appeared to be limited. Most were not willing '*to take it on board'* without further resources (for example, time, funding and support of health advisor) and training.

STI testing

There were varied practices amongst providers with respect to further STI screening of patients who tested positive for chlamydia. Most did not routinely screen for other STIs. The majority of providers stressed their preference for referring patients to the GUM clinic where they would receive a more '*comprehensive service'*.

Additional resources

When asked about what additional resources providers might need if chlamydia screening was introduced, several participants stated that time was the biggest barrier. Extra resources such as personnel and funding were also listed as high priorities. While training needs for providers were diverse, training on partner notification methods was the main area of concern.

4. Discussion and Conclusions

The current ***levels of chlamydia control*** in the Republic of Ireland corresponds most closely with Level A and Level B, as outlined in the ECDC Guidance on Chlamydia control in Europe [7].

Elements of primary prevention (health promotion and education) are in place, through national health services (for example HSE and Crisis Pregnancy Agency). So also are elements of Level B:

- surveillance (through Laboratories, Departments of Public Health, clinicians and the Health Protection Surveillance Centre),
- case management at GUM and Family Planning Clinics and in some GP practices, and
- diagnostic and partner management services, though access to the former is limited and urine-based testing is not available in all areas while the latter are generally restricted to GUM Clinics.

The population-based Irish Study of Sexual Health and Relationships [8] survey reported that 3.4% of men and 1.8% of women reported having ever been diagnosed with a STI, with the highest life-time rates in 25 to 34 year olds (5% of men and 4% of women), and in 35-44 old men.

These rates place "Ireland outside and below the usual range of rates reported in Knowledge Attitudes and Beliefs surveys. In the international context, this age pattern is unusual. The peak prevalence usually occurs later, since older respondents have had more time to acquire an STI. Older Irish people have unusually low numbers of sexual partners. . ." [8].

Historical rates of reported STIs in Ireland are low, compared to other European countries (ECDC 2009). However, large rises in reported STIs – a 60% increase in reported cases of genital chlamydia (from 3144 in 2006 to 5023 in 2007) and a doubling in reported cases of genital herpes (from 455 to 988) – may point to a rapidly changing picture and a 'catch-up' phenomenon in young Irish men and women, in their teens and twenties [12], and compliance with recent legislation requiring laboratories to notify all cases. Increased awareness and testing by health professionals is likely to account for only part of this new picture.

This report provides an evidence-base with respect to the acceptability, and preferred options around the delivery, of chlamydia screening services, from the perspective of 18-29 year olds who have used and those who have not used STI services. The ***findings of the qualitative and structured survey studies*** show a similar picture, and both are consistent with the findings of ISSHR. These can be summarised as follows:

- Most young people in Ireland are sexually active.
    - Two or more sexual partners in the previous year were reported by one fifth (ISSHR) to one third (in the CSI) of respondents.
    - One half of the students and 60% of the GP and health clinic attendees reported one sexual partner in the previous year.
    - One quarter of both groups of 18-29 year olds had had sex with a new partner in the previous three months (CSI).

- Despite the changes in sexual activity, young people in the CSI perceived sexual attitudes in Ireland to be conservative. They expressed high levels of fear around being stigmatised, if they were seen to be visiting a setting designated for the delivery of STI diagnosis and care. They also expressed concerns about the confidentiality of the services, including their local GP, where chlamydia and other STI screening might be made available
- The great majority of young people aged 18-29 years:
    - would find it acceptable to be offered a chlamydia test, especially a urine based one
    - would accept one if offered, and
    - only want the test to be offered by a non-judgemental health worker (doctor or nurse) in a confidential setting

Factors that would encourage them to accept screening included provision of free screening and the normalizing of screening, that is a service where they were not asked about risk factors such as numbers of sexual partners. Some stressed the importance of staff highlighting that accepting an offer of chlamydia screening is a positive healthy and responsible practice. Most said they would prefer to inform their current partners themselves if they tested positive for chlamydia. However, they were less likely to inform previous partners, which highlighted the need for contact tracing in a screening programme.

In summary, the data demonstrate a generally positive attitude to chlamydia screening among young people in college settings and while attending a range of primary care health service settings, and a large unmet need for sexual health services. Positive attitudes (95%) and intentions to accept chlamydia screening if offered (76-91%) would not necessarily translate into high screening uptake in these settings. Overall, target population coverage in the English National Chlamydia Screening Programme was estimated at 4.9% [6]; and "in contrast to predicted uptake of 50%, only 2.5% of 16- to 24- year olds were screened" over the course of one year [3].

The findings of the Pre-screening Study have produced a body of useful advice for planners and health care providers, especially GPs and other primary care providers, on how to configure services. They also highlight the importance and need for provider training, especially on the human dimensions of STIs and how they affect young people's health care seeking behaviour. Despite, sexual behaviour and rates of STIs that are approaching those of Ireland's European neighbours, young Irish women and men feel vulnerable and at risk in visiting health care settings with their sexual health concerns.

Providers (doctors and practice nurses) expressed support for chlamydia screening in young people, enthusiasm about participating in pilot screening for chlamydia, and optimism about the numbers of young people they could recruit. However, they also expressed concerns about the likely workload and reckoned that partner notification was the component of screening where they would most need support, preferably through the provision of a dedicated health advisor. They anticipated that it young men would be more difficult to recruit than young women.

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