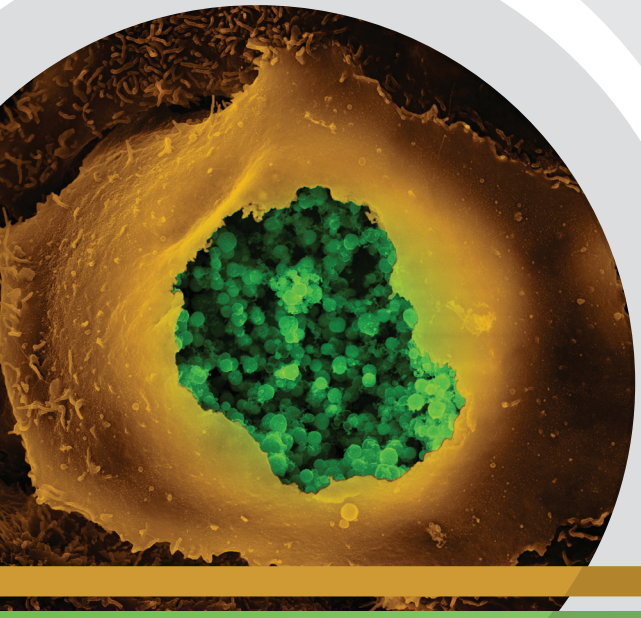

TECHNICAL REPORT

Chlamydia control in Europe

Qualitative evaluation of the impact of the 2009 ECDC guidance document *Chlamydia control in Europe*

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This report was commissioned by the European Centre for Disease Prevention and Control (ECDC) and coordinated by Otilia Sfetcu and Andrew Amato-Gauci.

In accordance with the Staff Regulations for Officials and Conditions of Employment of Other Servants of the European Union and the ECDC Independence Policy, ECDC staff members shall not, in the performance of their duties, deal with a matter in which, directly or indirectly, they have any personal interest such as to impair their independence.

This report was produced by Helen Ward, Bethan Davies and Minttu Rönn (Imperial College London, United Kingdom). This report is part of the Chlamydia Control in Europe Project initiated by ECDC in December 2011 under the coordination of Marita van de Laar and Otilia Sfetcu. The report builds on two previous outputs, which are documented in two ECDC technical reports: *Chlamydia control in Europe: literature review* (2014) and *Chlamydia control in Europe – a survey of Member States* (2012).

Declarations of interest were received from Helen Ward, Bethan Davies and Minttu Rönn in accordance with ECDC's Independence Policy and no conflict was identified.

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Contents

Figures

Tables

Abbreviations

CI	Confidence interval
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EP	Ectopic pregnancy
NAAT	Nucleic acid amplification test
PID	Pelvic inflammatory disease
PN	Partner notification
RCT	Randomised controlled trial
SCREen	Screening for Chlamydia Review in Europe project
STI	Sexually transmitted infection
TFI	Tubal factor infertility

1 Executive summary

In 2011, the European Centre for Disease Prevention and Control (ECDC) commissioned a programme of work to improve knowledge about the impact of chlamydia and chlamydia control in Europe. The aim of this project was to critically review and update the scientific evidence on the epidemiology and natural history of chlamydia and the clinical and cost-effectiveness of screening, update information about chlamydia prevention and control activities in EU/EEA Member States, and review the impact of the 2009 ECDC chlamydia control guidance.

This technical report describes the evaluation of the impact of the 2009 guidance document on policymaking in Member States and presents recommendations for a revised version of the guidance. It includes an overview of the responses collected during the 2012 survey on chlamydia control activities in EU/EEA Member States. Different user types – with regard to the guideline document – were identified and described in this report. In addition, a qualitative analysis of the discussions at the March 2014 meeting was conducted. The meeting had brought together experts from Member States who discussed their experiences with the guidance document.

This report concludes with evidence-based recommendations for the revision of the 2009 guidance document.

Key findings:

- Chlamydia control in Europe has improved: in 2012, only 21% (6/28) of the Member States reported no organised prevention and control activities (2007: 41% (11/27)). In 2012, most countries had a surveillance system in place; the reported rates of chlamydia infection reflect the level of control activities in most countries.
- Many ECDC survey (2012) respondents and participants at the 2014 expert meeting were aware of the 2009 guidance document. It was not possible, however, to gain in-depth insights into the document's use in the policymaking process as no senior policymakers participated in the project.
- Qualitative methods (e.g. analysis of discussions at expert meetings) can provide informative context and depth of understanding to supplement quantitative methods of data collection (e.g. surveys).
- It may be beneficial to ensure that publication of the initial document is accompanied by a scientific communication in a peer-reviewed journal.
- Structure and content of the 2009 guidance document should be revised. More specifically, the authors should consider the following: (1) tailor the format to the intended target audience, e.g. by partitioning it into a series of documents for specific audiences; (2) remove the limited clinical content of the guidance and add references to appropriate clinical guidelines; (3) improve the presentation of the stepwise approach to chlamydia control by expanding the evidence base for each activity; (4) include definitions of key terms.
- It is not necessary to translate the document and make it available in other languages.
- The dissemination strategy for the revised document has to be carefully planned to ensure that it reaches its target audience. Meeting participants committed to appropriately disseminating any future versions of the guidance. Consideration should be given to the design of an appropriate evaluation for the dissemination strategy.
- A revised version of the guidance would benefit from an accompanying toolkit.
- ECDC will explore the potential of producing additional resources that can be used for chlamydia control advocacy in Member States (e.g. slide sets) and will consider whether it can provide additional support for strategy development to interested Member States.

2 Introduction

2.1 Overview

In 2011, the European Centre for Disease Prevention and Control (ECDC) commissioned a programme of work to improve knowledge about the impact of chlamydia infection and chlamydia control in European Union and European Economic Area (EU/EEA) Member States. The aim of this project was to critically review and update the scientific evidence on the epidemiology and natural history of chlamydia and the clinical and cost-effectiveness of screening, update information about chlamydia prevention and control activities in EU/EEA Member States, and review the impact of the 2009 ECDC chlamydia control guidance.

ECDC has published technical reports that summarise the findings of literature reviews, updating the evidence on the population prevalence of chlamydia, the effectiveness of screening, and the cost-effectiveness of screening, together with a narrative review of the risk of complications following chlamydia [1] and the 2012 survey of chlamydia control and prevention activities in Member States [2].

This technical report describes the component of the project that evaluates the use of the 2009 chlamydia control guidance by Member States. It includes a description of responses from Member States to questions in the 2012 survey about chlamydia control activities in EU/EEA Member States, an analysis of the users of the guideline and qualitative analysis of moderated discussions with experts from Member States about awareness of and experience with the guidance.

This report concludes with evidence-based recommendations for the revision of the 2009 guidance document.

2.2 Background to ECDC chlamydia control in Europe guidance, 2009

ECDC commissioned its first review of chlamydia prevention and control activities in EU/EEA Member States in 2007. The findings from the Screening for Chlamydia Review in Europe (SCREen) project are presented in the ECDC technical report *Review of chlamydia control activities in EU countries* [3]. This review included an in-depth survey of chlamydia control in Member States, known as the *2007 SCREen survey* [3,4]. The information collected from Member States was used to allocate countries into one of five categories of chlamydia control activities: (1) no organised control activity; (2) case management of diagnosed cases; (3) case finding for partners of cases; (4) opportunistic testing for selected asymptomatic individuals; (5) organised screening programme.

Twenty-nine of the 33 invited countries participated in the 2007 SCREen questionnaire survey [2], which showed a wide variation in control activities, with 13 (45%) countries reporting no organised control activity [3].

2.3 ECDC chlamydia control in Europe guidance, 2009

In response to the findings of the 2007 survey, ECDC published an evidence-based guidance document, *Chlamydia control in Europe* in 2009 [5]. The guidance aimed to support Member States in the implementation of national strategies for chlamydia control and was directed towards programme managers, policymakers and experts in sexual health at European and national level.

The guidance suggested that Member States develop and implement evidence-based control policies tailored to their specific situation, and it suggested a stepwise approach to chlamydia control with four levels of incremental activity. The levels of activity represented expert opinion about the structure of a sustainable, comprehensive and effective control programme [3]. The categories were (A) primary prevention; (B) case management; (C) opportunistic testing and (D) screening programme (Table 2.1).

Table 2.1: Suggested step-by-step approach to developing national chlamydia control programmes

Level		Essential activities	Essential policies	Evaluation
A	Primary prevention	Sexual health and relationship education, awareness campaigns, promotion of condoms	Health promotion policies	Periodic surveys including knowledge and behaviour
B	Case management	As above, plus: • routine surveillance of cases • chlamydia diagnostic services • clinical services • partner notification services.	• chlamydia case reporting policy • guidelines for chlamydia diagnosis • guidelines for chlamydia case management • guidelines for partner notification.	• trends in case reports • quality control of diagnosis • periodic clinical audit • periodic audit
C	Opportunistic testing*	As above, plus: • chlamydia testing routinely offered to one or more specified group of asymptomatic people*.	• policy on who should be offered chlamydia testing and in which settings.	• coverage of target group(s)
D	Screening programme*	As above, plus: • organised provision of regular chlamydia testing to cover a substantial proportion of a defined population.	• policy on chlamydia screening.	Monitoring of: • coverage • positivity/prevalence • quality (including proportion treated, partners screened/treated) Evaluation: • trends in complications (PID, ectopic pregnancy, neonatal infections) • periodic survey of prevalence

** Impact of opportunistic testing and of screening programmes needs thorough evaluation, including trials, as evidence (of individual and population impact and cost effectiveness) is currently weak.*

Source: Chlamydia control in Europe in 2009 [5]

These four levels are broadly aligned to the five categories developed in the SCREen 2007 project.

This 2009 guidance was officially launched at the biennial conference of the International Society of Sexually Transmitted Disease Research in London in 2009 and accompanied by press releases from ECDC and a short video [6,7]. Presentations about the guidance were made at a number of European conferences. The guidance was circulated to Member States in hard copy, and made available for download from the ECDC website.

2.4 Chlamydia in Europe project, 2011–2014, evidence update

In 2011, ECDC contracted a consortium of researchers to critically review and update the scientific evidence on the epidemiology and natural history of chlamydia and the clinical and cost-effectiveness of screening, update information about chlamydia prevention and control activities in EU/EEA Member States, and review the impact of the 2009 guidance. Here, we summarise relevant findings from the literature reviews of the scientific evidence [1].

2.4.1 Chlamydia prevalence in Europe and other high-income countries

The systematic review identified few studies of chlamydia prevalence that were performed in nationally representative samples. An analysis of the nationally representative cross-sectional surveys from five EU/EEA Member States and the USA showed a pooled average prevalence of chlamydia in sexually experienced young adults (18–26 years) of 3.6% (95% confidence interval (CI), 2.4% to 4.8%) in women and 3.5% (95% CI 1.9% to 5.2%) in men. Chlamydia prevalence estimates from all studies that used population-based sampling methods, including those in sub-national regional studies, vary substantially by age, geographic coverage, sexual experience and response rate.

2.4.2 Complications of chlamydia infection

Lower genital tract infection with chlamydia can progress to pelvic inflammatory disease (PID, upper genital tract infection), ectopic pregnancy and tubal factor infertility (TFI), with evidence of a strong association between

chlamydia infection and PID. An increase in diagnosed cases of chlamydia in many high-income countries has coincided with a decline in the incidence of PID over recent decades. The reasons for this ecological association have not been elucidated.

The review found a paucity of high-quality studies looking at the risk of PID, ectopic pregnancy and TFI in women who have had chlamydia. The timing of progression from lower to upper genital tract chlamydia infection is still unclear, and there are methodological challenges to measuring the rate of progression to reproductive tract complications. Recent studies have applied mathematical modelling and statistical methods for evidence synthesis to estimate risks of PID (10–15% after one year) and TFI (1% in lifetime). These estimates are lower than those cited in many narrative reviews and used in some mathematical modelling studies of chlamydia control interventions.

2.4.3 Clinical effectiveness of chlamydia screening

A systematic review and meta-analysis estimated the reduction in PID incidence one year after a single offer of chlamydia screening at 0.64 (95% CI 0.45 to 0.90). This is the pooled risk ratio from four individually randomised controlled trials (RCTs) of chlamydia screening. There is, however, an absence of evidence from RCTs that screening programmes have an impact on chlamydia prevalence at the population level and the level of annual screening required to reduce chlamydia prevalence is unknown. There was insufficient evidence to comment on the most effective timing of screening in order to prevent tubal damage. There were no RCTs of the effectiveness of antenatal chlamydia screening.

2.4.4 Cost-effectiveness of chlamydia screening

The review highlighted a recent increase in the use of dynamic models of chlamydia transmission to explore the cost-effectiveness of screening interventions, but identified limitations with current analyses. Specifically, they are influenced by the uncertain estimates of the risk of PID following infection and of the impact on quality of life. The review found that studies tended to use values for these parameters that would favour intervention.

3 Aims of the 2009 ECDC guidance evaluation

This technical report summarises the evaluation of the impact of the 2009 ECDC guidance. It includes a description of responses from Member States to questions in the 2012 chlamydia control survey of chlamydia control activities in EU/EEA Member States, an analysis of the users of the guidance, and a qualitative analysis of a moderated discussion with experts from Member States about awareness of, and experience with, the guidance. It concludes with evidence-based recommendations for revision of the 2009 guidance.

The aims of the evaluation are:

- to evaluate the impact of the 2009 ECDC chlamydia guidance on policymaking within Member States; and
- to develop recommendations for a revised edition of the ECDC guidance.

3.1 Research questions

- What is the current chlamydia control policy in Member States?
- Who is the current audience for the guidance document? What does the research literature suggest about how the document has been used?
- How has the guidance been used by policy leads in Member States?
- Does the guidance need to be updated at this time? If so, how could the structure and content be improved?
- How should ECDC best disseminate the new guidance and assist Member States to implement the contents?

4 Methods

The protocol for this work is summarised in Table 4.1.

Table 4.1: Summary of methods used to address specific questions

Research question	Proposed methods
What is the current chlamydia control policy in Member States?	• Summary of findings from the 2012 survey • Direct contact with representatives from Member States that did not participate with 2012 chlamydia control survey
Who is the current audience for the guidance? What does the research literature suggest about how the document has been used?	• Web statistics and description of guidance access through the ECDC website • Search for citations of the guidance in the published and grey literature
How has the ECDC chlamydia guidance been used by policy leads in Member States?	• Analysis of responses to Section 3.2 of the 2012 chlamydia control survey questionnaire • Combination of the findings from the survey on (1) comparison of category of chlamydia control activity (2007–12) with (2) use of the guidance to identify countries that form groups of interest to define specific topics to explore in the moderated discussions • Moderated discussions at the expert meeting
Does the guidance need to be updated at this time? If so, how could the structure and content be improved? How should ECDC best disseminate new guidance and assist Member States to implement the contents?	• Moderated discussions at the expert meeting • Analysis of discussions at the expert meeting and expert opinion from the Chlamydia Control in Europe project team

4.1 Current chlamydia control policy

The detailed methods for the 2012 survey of chlamydia control and prevention activities in EU/EEA Member States have been described in an earlier technical report [2]. Briefly, this cross-sectional survey was used to collect the following categories of national level data: (1) chlamydia prevention and control activities in Member States in 2012; (2) information for the evaluation of the 2009 guidance; (3) unpublished data about the prevalence of chlamydia in the population; and (4) suggestions for strengthening chlamydia prevention and control in Europe.

Contact points in the STI networks of all 27 EU Member States and three EEA Member States were asked to complete the survey electronically through the ECDC website between December 2012 and February 2013. The completed surveys were exported to a Microsoft Excel 2010 spreadsheet and merged with secondary data sources and the responses from the 2007 SCREen questionnaire. The spreadsheet was exported to IBM *SPSS Statistics* (version 19.0) for analysis.

Two countries did not respond to the survey, Greece and Poland. Representatives from Greece and Poland were contacted directly by email and at the expert meeting (see Section 4.4.1) and asked to provide answers to the relevant four questions included in the 2012 survey; their responses are included in the analysis.

4.2 Current audience of the guidance and use in published literature

Two methods were used to obtain information about the audience of the guidance: an analysis of the ECDC website, including a description of the process involved in obtaining the guidance online; and a search for citations of the guidance in the published and grey literature.

4.2.1 Website access of guidance

The main routes for accessing the guidance online are likely to be through a search engine or through links on the ECDC website. We accessed the ECDC website and described how we were able to access the guidance. We also commented on how visible the document was and which web pages had a link to it.

We then requested the following information from the ECDC webmaster (February 2014):

- Which ECDC web pages carry a link to the 'ECDC Chlamydia Control in Europe' PDF?
- How do web users reach the two web pages (via a search engine, directly, or through links from other sites)?
- How many views did the web pages receive annually from 2009 to present?
- Was there evidence of a peak in access of the web pages, and when did this occur?
- Which countries have accessed the web pages?

4.2.2 Citation of guidance

To collect information about the citations of this guidance in the published literature we performed keyword searches of the following medical databases:

- Web of Science (ISI Web of Knowledge) science citation index as the search platform, through Imperial College London subscription, which covers the following databases: Web of Science Core Collection (v.5.13.2), CABI: CAB Abstracts and Global Health, Current Contents Connect, Medline, SciELO Citation Index
- PubMed search platform which searches through Medline database
- Google Scholar.

The databases searched – and the search terms used on 25 February 2014 – are listed in Table 4.2. All searches were limited to publications after 1 January 2009 (the year the guidance was published). The obtained references were imported into EndNote and duplicates were manually identified. Articles were excluded if they were in another language than English, the full text was unavailable, or they were the 2009 guidance. The full text of each remaining article was obtained using Imperial College London journal subscriptions, and the reference lists were searched for a citation of the 2009 guidance. A summary was created of the full text articles that did not cite the guidance. Articles which contained a citation of the guidance were categorised as peer-reviewed or other. Data was extracted as to whether the authors of the article were also authors of the 2009 guidance and whether the article formed part of the wider ECDC chlamydia control project. For all articles that cited the guidance, the quote containing the citation was obtained and the nature of this citation was classified.

Following discussion with the ECDC librarian and comments from the expert meeting on guidance evaluation (Stockholm, 20–21 March 2014) (see Section 4.4 for full details), we repeated the searches on 20 May 2014 with extended search terms and included an additional database (see Table 4.2):

- Scopus abstract and citation database

Using Scopus tools, we viewed and saved the references of the identified studies and searched them for the chlamydia guidance, cross-checking the identified articles against the previous search results. For any new articles identified, we obtained the full text and extracted data as above.

Table 4.2: Summary of search strategy for citation search

Search Engine	Date of search	Key words and Boolean operators used
Web of Science, Science Citation Index	25 February 2014	'chlamydia' AND 'control' AND ('Europe' OR 'ECDC')
	20 May 2014	'chlamydia' AND 'control' AND 'Europe' AND ('ECDC' OR 'European Centre for Disease Prevention and Control')
Pubmed	25 February 2014	'chlamydia' AND 'control' AND 'ECDC'
	20 May 2014	'chlamydia' AND 'control' AND ('ECDC' OR 'European Centre for Disease Prevention and Control')
Google Scholar	25 February 2014	'Chlamydia Control in Europe'
	20 May 2014	'Chlamydia Control in Europe'
ResearchGate	25 February 2014	Manual search of ECDC and Helen Ward webpages (author of the guidance)
	20 May 2014	Manual search of ECDC and author (of the guidance) webpages: Helen Ward; Hans Fredlund; Hannelore Gotz; Veronique Goulet; Angela Robinson; Anneli Uuskula In addition, searched for 'Chlamydia control in Europe'
Scopus	20 May 2014	'chlamydia' AND 'control' AND ('ECDC' OR 'European Centre for Disease Prevention and Control')

4.3 Use of guidance by policy leads in Member States

Two methods were used to address this question: analysis of the 2012 chlamydia control survey and presentations at the ECDC expert meeting on guidance evaluation (Stockholm, 20–21 March 2014) (see Section 4.4 for full details).

4.3.1 2012 chlamydia control survey

Information about Member States awareness and use of the 2009 guidance was collected in Section 3.4 of the 2012 chlamydia control survey. This section of the survey contained four questions (Table 4.3) developed by the survey team to specifically assess the awareness and use of the guidance. The same questions were asked of

representatives from Member States that did not participate in the survey to provide a more complete picture. This was done by email and in person at the expert meeting.

Table 4.3: Extract of Section 3.4 from the 2012 chlamydia control survey

Survey question*
• In 2009, ECDC published a guidance document on chlamydia control in Europe. Are you aware of the ECDC guidance document?
• Has this document been disseminated to STI or public health professionals in your country? To whom?
• Has the guidance been used for improvement of chlamydia control in your country? Select from the following examples: - Writing a new policy or strategy or guideline document on chlamydia control in my country - Updating existing policy or strategy guideline documents on chlamydia control - Improving diagnostic facilities or procedures for chlamydia testing - Improving surveillance of chlamydia - Training or education among professionals in the field of STI control - Evaluating or reviewing existing chlamydia control framework - No or not yet - Specify your own value
• Has the guidance been used for advocacy for (the need to address) chlamydia control in your country? Select from the following examples: - Drawing attention to and raising awareness for Chlamydia control among policymakers? - Obtaining more funding and resources assigned to Chlamydia control - Other advocacy goals - None of the above

** Extract of survey on guidance evaluation is presented in Appendix 2*

4.3.2 Case study presentations at the expert meeting

The expert meeting held by ECDC in Stockholm, 20-21st March 2014 included presentations from selected countries with different experience of chlamydia control efforts (see Appendix 3). These presentations provided an additional source of information about how the 2009 guidance had been used in Member States. Presenters were asked to cover the following points:

- An overview of their country's chlamydia control objectives;
- A description of current chlamydia control activities and changes since 2007;
- A discussion of whether the guidance had been used to support changes in control activity;
- Comments and suggestions about revision of the guidance.

4.4 Guidance updating

This question was addressed by moderated discussions at the Expert Meeting held by ECDC in Stockholm on 20–21 March 2014 following presentations and discussion of the case studies and the evidence about how the guidance had been used. Appendix 3 shows the meeting programme.

4.4.1 Organisation of the expert meeting

Participants for the expert meeting were selected by ECDC based on recognized expertise and contribution to: chlamydia epidemiology, diagnosis and treatment, public health, policy decision-making. The agenda for the meeting was set by ECDC in consultation with the project lead for the evaluation (Professor Helen Ward (HW)) and consortium lead (Professor Nicola Low). Project team members and invited experts prepared presentations for the meeting as outlined in the agenda.

4.4.2 Moderated discussions

Moderated discussions during the expert meeting were used to obtain in depth information about Member States' experience and opinions on the five components of this specific question: guidance content; structure; audience; dissemination and implementation. The topic areas were developed iteratively by the project team and ECDC in a process informed by the findings of sections 4.2 and 4.3. Preparation for these discussions and the necessary background and information to stimulate discussion was obtained from the material that attendees received prior to the meeting (agenda; 2009 guidance; first expert meeting technical report) and the earlier sessions. The sessions were moderated by a member of the project team or an ECDC representative. Dr Bethan Davies (BD) and Dr Minttu Rönn (MR) collected a written record of the comments made by the participants during discussions.

The notes collected by BD and MR were collated, reviewed, and discussed by BD, MR and HW to identify the key emerging themes. An internal report that documents the content of the meeting has been drafted and circulated to attendees.

Table 4.4: Summary of moderated discussion topics

Question	Moderated discussion topic (meeting session)*
1. Who is the appropriate **target audience** for the guidance	• Who is the appropriate target audience for the guidance? (Session 2) • How could the current guidance be changed to reflect this? (Session 2)
2. Should the **content** of the guidance be updated	• Should the stepwise approach to control be changed? (Session 3) • Does the guidance need to change? (Session 4) • How could the guidance be changed to make it more useful? (Session 4) • Should the guidance include case studies of guidance implementation? (Session 4)
3. Should the **structure** of the guidance be updated	• Does the guidance need to change? (Session 4)
4. How can ECDC improve their **dissemination** strategy	• How can ECDC increase dissemination and awareness of the guidance? (Session 2)
5. Is there a role for ECDC in the **implementation** of the guidance by Member States	• What are the key messages about the role of ECDC guidance in Member State policy development? (Session 1)

** Agenda in Appendix 3*

5 Results

5.1 Current chlamydia control policy

A completed questionnaire for the 2012 chlamydia control survey was returned by 28 of the 30 invited Member States. The reported level of chlamydia control is outlined in Table 5.1. Details can be found in the technical report [2]. A comparison of how chlamydia prevention and control activities changed between 2007 and 2012 identified a reduction in the number of countries with no organised chlamydia control (from 41% (11/27) in 2007 to 21% (6/28) in 2012) [2]. The proportion of countries which offer case finding (partner notification) increased from 41% (11/27) in 2007 to 68% (19/28) in 2012. Almost half of countries (46% (13/28)) recommended opportunistic testing to certain groups, and one country had an organised screening programme. Most countries had a surveillance system in place, and the reported rates of chlamydia infection reflected the level of chlamydia control activity in the majority of countries.

On further enquiry, the representative from Greece (one of the two non-responding countries) indicated that they had guidelines for case management and a chlamydia surveillance system and would therefore be in the second level of this table. There was no further information from Poland.

Table 5.1: Chlamydia control category of Member States in 2012

Chlamydia control category	Countries 2012 (N=28)
No organised chlamydia control activity	Ireland, Luxembourg, Malta, Portugal, Slovakia, Slovenia (n=6, 21%)
Case management guidelines	Belgium, Cyprus, Italy (n=3, 11%) (+Greece*)
Case management including PN	The Czech Republic, Hungary, Liechtenstein, Romania, Spain (n=5, 18%)
Opportunistic testing	Austria, Bulgaria, Denmark, Estonia, Finland, France, Germany, Iceland, Latvia, Lithuania, the Netherlands, Norway, Sweden (n=13, 46%)
Screening programme	UK (n= 1, 4%)

Reproduced from reference 2, Table 18; PN, partner notification

** Greece provided information at the expert meeting*

NB: The survey used in this project was adapted from the 2007 SCREen questionnaire. The collected data were used to assign countries to categories (1–5) as in 2007 [3]. As in 2009, countries also provided a self-reported category (A–D) [5].

5.2 Current audience of guidance and use in published literature

5.2.1 Website access of guidance

We searched for the guidance through the search engine on the ECDC website homepage (19 May 2014). Searching for 'chlamydia' lead first to the chlamydia information page where the guidance was prominent as a featured publication.

We also searched for the guidance manually by selecting the 'Publications' heading on the ECDC homepage. Selecting the 'Guidance' subheading brought up a list of ECDC guidance reports, which did not include the 2009 chlamydia guidance. This may suggest incorrect indexing of the guidance on the ECDC website. Next we selected the 'HIV, STI and viral hepatitis' subheading and found that the 2009 chlamydia guidance was listed. Returning to the 'Publications' heading, a list of all publications (which are listed in chronological order) can be obtained. The 2009 guidance was found on page 56. We were also able to find it by going through 'Health topics' heading and selecting 'Sexually transmitted infections' from the topic list. From this page, either selecting 'Chlamydia' or 'Publications' lead to the 2009 chlamydia guidance. In summary, there are many possible routes for accessing the guidance, and the guidance is readily available on the chlamydia homepage.

The ECDC webmaster responded to the data request and presented her findings at the expert meeting. Unfortunately, data on web usage of the guidance were limited because (a) there were no data prior to 2011, and therefore access in the period following publication was not captured, (b) the web analytics tool used by ECDC at the time did not track PDF downloads, and (c) the landing page for the guidance changed due to platform migration in 2013. These factors make it difficult to fully assess web activity.

From 2011 to early 2014, just under 200 page views were logged for the guidance landing page. The landing page to access the PDF ranked at number 9 in terms of number of accesses in all chlamydia-related pages on the ECDC website. A peak in visits was observed in October 2013.

People who accessed the guidance did so via search engines or links on other websites rather than directly through the ECDC website. When accessed via the ECDC website, it was mainly (55%) via the publication pages hosting the guidance reports. External access occurred via Google (50%), direct links (30%) and the European Commission website. In 2013, the main countries accessing the guidance landing page were Austria, Belgium, Poland, Portugal, Sweden and the United Kingdom with 17 page views each.

The participants at the expert meeting (see section 4.4.1) discussed these findings, and highlighted the limitation of this type of information, both in terms of the lack of early and specific analytic data, and that this may not be how the guidance document was accessed. In addition, web access does not indicate why and how the document was used. One participant explained that after downloading the document they used their national-level email groups to widely distribute it within their country. It was suggested that to increase the visibility of the guidance, ECDC would have to promote it, for example through social media or STI surveillance reports. ECDC should also make it more visible on the website and document visits and downloads more consistently.

5.2.2 Citation of guidance

Our literature search on 20 February 2014 identified 47 full-text articles in English that appeared to cite the guidance. The full text of these 47 articles was obtained, and 40 (85%) included a citation of the guidance. The seven without a citation were two press releases promoting the guidance [6,7], an ECDC report [8], an application for funding [9], an update to a funding organisation [10], a literature review [11] and the Cochrane review being undertaken by the project team [12]. The repeated search on 20 May 2014 identified a further four articles that cited the guidance. In total we found 44 articles that cited the guidance.

The majority of articles citing the guidance were peer-reviewed (39/44, 89%). The five that were not peer-reviewed were a national public health report [13], a letter to an editor [14], a PhD thesis [15], a conference paper [16] and a poster [17]. Two of the articles that cited the guidance were part of the wider ECDC chlamydia control project [4,18], and a further three were self-citations by authors of the guidance [19-21]. All but three of the articles reported studies conducted in a high-income setting, the others being Sudan [22], Russia [23] and Nigeria [24].

For all 44 citing articles, the specific extract referencing the guidance was categorised into the following eight groups as shown in Table 5.2: risk or prevalence of chlamydia, chlamydia as a public health concern, cost of chlamydia or cost-effectiveness of screening, screening as a method of reducing morbidity or mortality, criteria for screening, study methods/ launch of guidance, the approach to control, control activities in specific countries. Only one study citing the guidance specifically mentioned the activity levels. All other studies cited the guidance as a secondary reference to background information about chlamydia epidemiology and natural history.

Figure 1: Summary of search findings

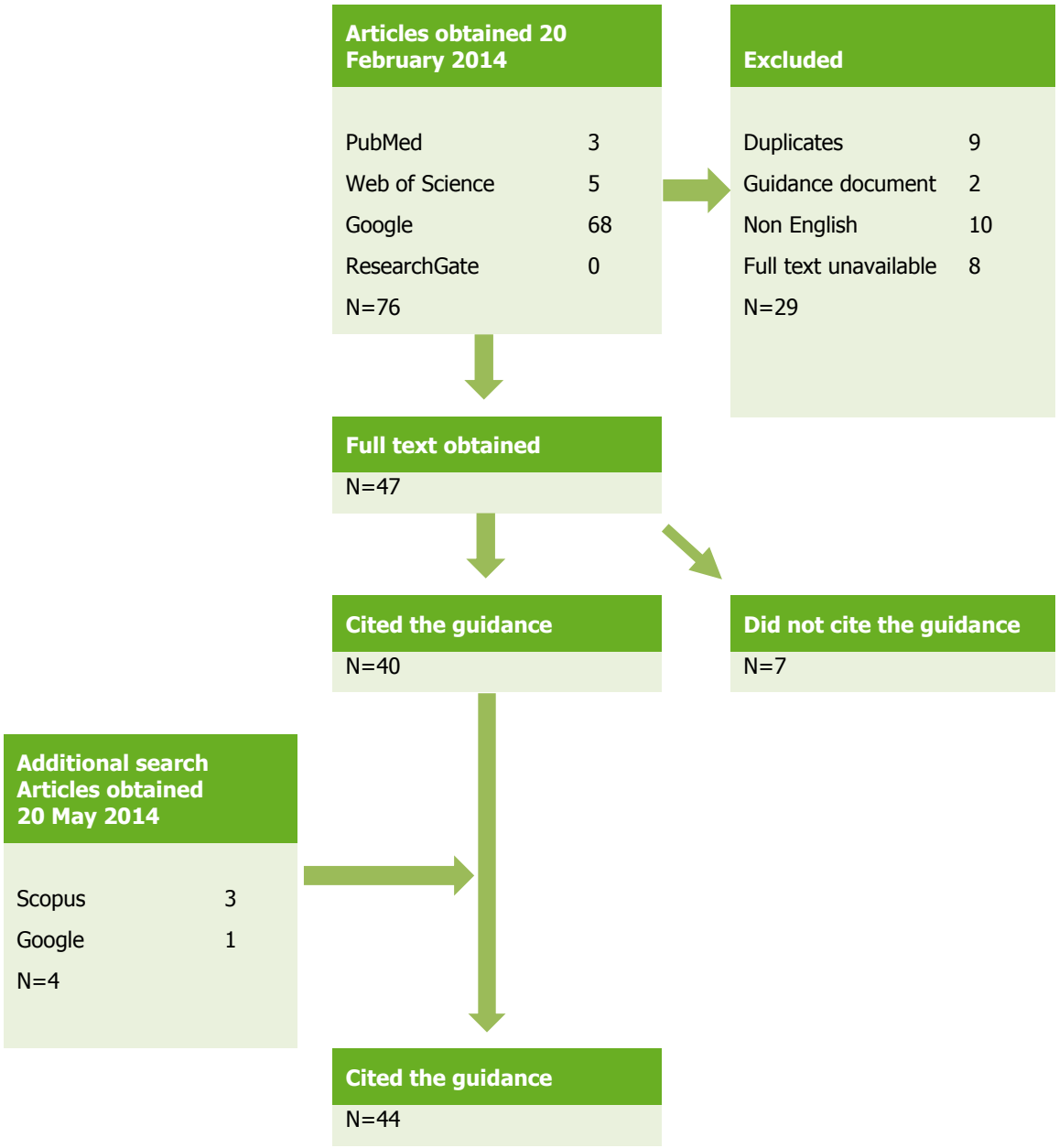

Table 5.2: Summary of the type of information cited from the guidance document*

Type of information	References	Examples
Risk or prevalence of chlamydia (n=25)	[13,14,16,21-23,25-43]	'Chlamydia is the commonest curable sexually transmitted infection (STI) in Europe and the United States.' (Booth, 2014)
Chlamydia as a public health concern (n=3)	[14,17,44]	'Left untreated infection can have serious consequences, such as ectopic pregnancy and infertility in women and epididymitis and reactive arthritis in men.' (Jennison, 2011)
Cost of chlamydia or cost effectiveness of screening (n=3)	[22,45,46]	'Estimates of the probability of late sequelae of chlamydial infection, including TFI, impact upon the cost effectiveness of chlamydial screening programmes.' (Kavanagh, 2013)
Screening as a method of reducing transmission or morbidity (n=8)	[20,24,34,46-50]	'In many developed countries, screening programmes for Chlamydia have been set up to reduce transmission and reproductive tract morbidity.' (Mawak, 2011)

Type of information	References	Examples
Criteria for screening (n=2)	[40,46]	'In England the recommendation [for annual screening] applies to women aged 24 or less.' (Oakeshott, 2011)
Study informed/used same methods/linked to launch of guidance (n=4)	[4,18,19,51]	
The approach to control (n=5)	[15,26,32,33,36]	'The current levels of chlamydia control in the Republic of Ireland correspond most closely with Level A and Level B, as outlined in the ECDC Guidance on Chlamydia control in Europe.' (Balfe, 2012)
Control activities in specific countries (n=6)	[6,40,42,52-54]	'Clinical guidelines in many countries recommend annual CT screening for all sexually active young women and extend to young men in some countries.' (Jamil, 2014)

** It is possible for an article to appear in more than one category*

5.2.3 Discussion about use of guidance in published literature at expert meeting

The findings from the 20 February 2014 search were presented at the expert meeting. The presentation highlighted the difficulty in identifying citations of a document that was not published in a peer-reviewed scientific journal as they are not referenced or collated in a consistent way (e.g. through the Web of Science citation index and ResearchGate). The discussion considered the utility of information on how the article was used in an academic setting when the actual target audience was policymakers. We found that when the guidance was cited by researchers in peer-reviewed publications, it was predominantly used as a general reference for chlamydia control, rather than for its policy-specific content (see Table 4.2). It was noted that the findings on the impact of the guidance obtained through this method are difficult to interpret as use in research does not provide any insights into its use for policy.

If there is a need to track the use of future guidance in the literature, it would be helpful to publish the guidance, or an article summarising the guidance, in a peer-reviewed journal. The discussion revealed additional methods of distribution that were not systematically recorded: for example, in Greece the guidance was described in a newsletter distributed to 10 000 healthcare workers.

5.3 Use of the guidance by policy leads in Member States

5.3.1 Data from 2012 chlamydia control survey

Of the 30 invited EU/EEA countries, 27 (90%) completed the survey. The nominated contact points for STI surveillance – generally epidemiologists at the national public health institutes – responded to the survey. Greece and Poland did not participate. Luxembourg reported that activity was unchanged from 2007 and did not respond to Section 3.4 of the survey (which collected information on the use of the guidance). Key findings on awareness, dissemination and use of the guidance are presented below.

5.3.1.1 Awareness of 2009 ECDC chlamydia control guidance in Member States

- Twenty-four of 26 country representatives (92%) were aware of the guidance document, with only Cyprus and Liechtenstein not being aware. (No data from Romania)

5.3.1.2 Dissemination of 2009 ECDC chlamydia control guidance in Member States

- Nine of 27 countries (33%) reported dissemination to STI or public health professionals (Belgium, Ireland, Latvia, Malta, the Netherlands, Slovakia, Spain, Sweden, and the UK).
- Country comments about the dissemination of the guidance within their country are provided in Box 1. (No comments from the UK.)
- These responses indicated a variation to the extent of this dissemination, with some countries limiting distribution to clinical services and some including public health and prevention specialists.

Box 1: Country comments in response to the question 'Has this document been disseminated to STI or public health professionals in your country?'

Belgium: 'Some STI clinics and NGO working on prevention.'

Ireland: 'Public health physicians with a special interest in STIs.'

Latvia: '...dermatovenerology, specialists of genitourinary medicine (GUM) and urologist relevant professional associations'

Malta: 'GU clinic physician.'

Netherlands: 'STI contact persons and their co-workers. I don't think many others.'

Slovakia: '...epidemiologists, dermatovenerologists, gynaecologists, urologists and microbiologists.'

Spain: 'Staff for STI clinics.'

Sweden: 'Through the electronic bulletin of our institute (SMI).'

5.3.1.3 Use of 2009 ECDC chlamydia control guidance in Member States

- Eleven of 25 countries (44%) reported that the guidance had been used to improve control (Bulgaria; Czech Republic; Estonia; France; Ireland; Italy; Latvia; the Netherlands; Norway, Spain and Sweden)
- A description of how it was reported to have been used within the countries is provided in Table 5.3. (No data from Cyprus and UK)
- Six countries reported that the guidance had been used to write or update a policy, strategy or guideline. The data suggests that the guidance may have been used by a wider audience than policymakers, including for surveillance, training and clinical practice.

Table 5.3: ECDC guidance has been used for improvement of chlamydia control

Improvement chlamydia control	Countries 2012
'Background information'	Norway (n=1)
Writing a new policy/strategy/guideline	Bulgaria, Estonia, Ireland, Latvia, the Netherlands (n=5)
Updating existing policy/strategy/guideline	France (n=1)
Improving diagnostic facilities or procedures on testing	Latvia (n=1)
Improving surveillance of chlamydia	The Czech Republic, Italy, Latvia, Spain (n=4)
Training or education among professionals	Italy (n=1)
Evaluating or reviewing existing chlamydia control framework	Bulgaria, Sweden (n=2)
No, or 'not yet'	Austria, Belgium, Denmark, Finland, Germany, Hungary, Iceland, Liechtenstein, Lithuania, Malta, Portugal, Romania, Slovenia, Slovakia (n=14)
No answer	Cyprus, UK (n=2)

- Six of 24 countries (25%) reported using the guidance document for advocacy (defined as 'the need to address') in relation to chlamydia control (Belgium, Germany, Ireland, Italy, Latvia, and Spain). (No data from Cyprus, Slovakia and the UK).
- A description of how the guidance was used for advocacy is shown in Table 5.4.
- Country comments about the use of the document for advocacy are provided in Box 2 and highlight the breadth of priorities and challenges to chlamydia control in the participating Member States.

Table 5.4: ECDC guidance has been used for advocacy for chlamydia control

Improvement chlamydia control	Countries 2012
Drawing attention to and raising awareness for Chlamydia control among policymakers	Ireland, Italy, Latvia, Spain (n=4)
Obtaining more funding and resources assigned to Chlamydia control	Germany, Italy (n=2)
Other advocacy goals	Belgium (n=1)
None of the above	Austria, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Hungary, Iceland, Liechtenstein, Lithuania, Malta, the Netherlands, Norway, Portugal, Romania, Slovenia, Sweden (n=18)
No answer	Cyprus, Slovakia, UK (n=3)

Box 2: Country comments to describe the use of the guidance for chlamydia control advocacy

'It triggered an in-depth analysis of the chlamydia situation. The results have been presented to some health practitioners, to the Flemish STI platform and during the annual STI seminar of the IPH. An abstract has been submitted.'

'The document was mentioned in an application for funds for chlamydia sentinel system.'

'Lack of human resources in Iceland is the main reason for not using the guidance document. We have an effective system that could be improved with the help of the guidance document if the human resources were available.'

'Used in conjunction with publication of the Irish chlamydia study.'

'The guidance has been used in research proposals that were not funded.'

'Our sexual health policy is still rather new for us so it is still in the stage of planning and setting up.'

'Health authorities are not interested in chlamydia.'

'We already have our plan in place.'

5.3.2 Case study presentations at the expert meeting

Invited experts from five Member States (Germany, Belgium, Bulgaria, Estonia and the Netherlands) presented information about setting-specific activities, problems and challenges to chlamydia control.

5.3.2.1 Germany

Chlamydia is not notifiable in Germany.. Saxony is since 2001 the only German state to have surveillance data from laboratories, and there is a low awareness of chlamydia in the general population. Chlamydia testing has been offered to pregnant women since 1995 and to women below the age of 25 attending gynaecology care since 2008. The aim of testing is to reduce birth complications and to reduce prevalence and complications. Additionally gynaecologists perform opportunistic screening. It was suggested that the guidance should supply more information about diagnostic methods, especially of the low quality of point-of-care tests (available for purchase online through unregulated sources) as well as a critical review of the feasibility and cost-benefit ratio of screening.

5.3.2.2 Belgium

In Belgium, chlamydia control is monitored through sentinel networks of laboratories and clinicians. Belgium conducts chlamydia awareness campaigns, encouraging risk groups to get tested. Belgium has dedicated STI centres for social and medical assistance for specific groups, e.g. sex workers, MSM and students. However, opportunistic screening practices vary by clinic. No official screening or partner notification guidelines exist. ECDC chlamydia guidance has been used by experts in Belgium for advocacy. Belgium publishes an annual STI report which presents chlamydia notification rates and risk behaviours. It contains also screening recommendations. Primary prevention campaigns have been conducted, and there are informal multidisciplinary STI working groups which discuss topics such as improving partner notification, testing practices, and test reimbursement policies. It was, however, noted that the guidance has not been used by politicians because chlamydia is not seen as a priority public health issue. Belgium will focus on developing partner notification, aligning screening guidelines across the regions, and reviewing the reimbursement policy for chlamydia testing.

5.3.2.3 Bulgaria

Bulgaria's chlamydia control priority is for good case management. Chlamydia testing and counselling is offered through medical specialists as well as voluntary counselling centres and mobile medical units. After the chlamydia guidance was published, Bulgaria used the recommendations as a starting point for the development of a new national ordinance. The aim is to improve chlamydia control by introducing testing to a wider range of risk groups and planning a national reference laboratory.

5.3.2.4 Estonia

Estonia does not have a national strategy for STI prevention and control, and their efforts are focused on HIV prevention. Opportunistic screening is performed for pregnant women and sexual health education is part of the school curriculum. There have been updated case management guidelines but chlamydia control has not changed significantly since the release of chlamydia guidance.

5.3.2.5 The Netherlands

In the Netherlands there are new, innovative social media campaigns for sexual health and STIs. An RCT of screening has been performed in the Netherlands but screening was not rolled out as the low uptake found by the study did not demonstrate that screening had an impact on prevalence[1]. Therefore their current focus is on case management and improved partner notification. The Netherlands is also aiming for integrated sexual healthcare, where sexual health is part of STI services.

5.4 Updating ECDC chlamydia control guidance

5.4.1 Background information to inform an agenda and participant selection for the expert meeting

We identified the levels of chlamydia control in the Member States by looking at previous surveys [2] (see Section 5.3.1). This allowed us to identify Member States that shared similar experiences with the 2009 guidance and may have insights relevant to the updating of the document. We then selected country representatives to present at the expert meeting to reflect the breadth of experience across Member States.

First, we summarised the categories of chlamydia control in 2007 and 2012. Three countries only had data from one survey: Cyprus, Greece and Slovakia. Fourteen countries (Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Malta, Norway, Portugal, Slovenia, Sweden and the UK) had an unchanged level of chlamydia control activity between 2007 and 2012. Overall, 12 countries changed their category of control. Five countries went from reporting no organised activity to reporting the presence of chlamydia control activity (Bulgaria, Finland, Lichtenstein, Romania and Spain). The Netherlands withdrew their screening programme (see Section 5.3.2).

We then combined this summary of the change in a country's category of chlamydia control between 2007 and 2012 with their reported use of the 2009 guidance document (reported in detail in Section 4.3.1 and summarised in Appendix 1). Using this information, we assigned countries to groups of interest for the evaluation of the 2009 guidance and defined specific topics to explore (Table 5.5).

We also identified two countries that may have a unique perspective on chlamydia control and the guidance document based on their provision of an organised screening programme. The United Kingdom–England is the only country with a current programme. The Netherlands had a programme between 2007 and 2012, which has since been withdrawn.

[1] This was a register-based, stepped-wedge cluster randomised controlled trial of among young adults (16–29 years) in three regions of the Netherlands where testing was offered via mail. The study did not find evidence that the intervention impacted chlamydia positivity rates or estimated population prevalence of chlamydia [55].

Table 5.5: Categories relevant to the evaluation of the guidance

Summary of use of the guidance	Countries	Suggested contribution to guidance evaluation
Unaware of the guidance	Cyprus, Lichtenstein (n=2)	Identify factors that could improve the visibility of future editions of the guidance
No reported dissemination and no reported use of the guidance	Austria, Denmark, Finland, Hungary, Iceland, Lithuania, Luxembourg, Portugal, Slovenia (n=9)	
No reported dissemination, with reported use of the guidance	Bulgaria, the Czech Republic, Estonia, France, Germany, Italy, Norway (n=7)	Information about how the guidance document has been accessed by interested parties which can inform any future dissemination strategy
No organised control activities in 2007 and 2012 and awareness of the guidance	Ireland, Luxembourg, Malta, Portugal, Slovenia (n=5)	Explore the specific reasons for this situation, including if countries would be interested in the introduction of chlamydia control activities – and if ECDC would be able to provide assisstance in this area.
No change in category between 2007 and 2012, with reported use of the guidance to improve chlamydia control	Estonia, Ireland, Italy, Latvia, Norway, Sweden (n=6)	Explore which information was used to inform/support this process which could inform the design and content of the guidance; share experience of using guidance to inform potential update; information about potential target audience and use
Change in category of chlamydia control, with reported use of the guidance	Belgium, Bulgaria, the Czech Republic, France, Germany, the Netherlands, Spain (n=7)	
Change in category of chlamydia control, without reported use of the guidance	Austria, Finland, Lichtenstein, Lithuania, Romania (n=5)	Information about alternative sources of information/evidence to critically compare guidance

5.4.2 Moderated discussions at the expert meeting

The moderated discussions during the expert meeting are relevant to updating the guidance. The topics of the discussions are outlined in Table 4.4.

5.4.2.1 Target audience for ECDC guidance on chlamydia control

The participants thought that the current guidance has reached a wider audience (experts, policymakers, healthcare professionals, advocates, health insurance companies) than its intended target (policymakers and advocates). There was a suggestion that the target audience could perhaps be widened to include insurance companies given the role they play in the reimbursement of the cost of chlamydia testing in certain settings. The intended audience needs to be clarified and highlighted in the next edition of the guidance.

5.4.2.2 Content of revised ECDC guidance on chlamydia control

There was a general consensus that the development of definitive recommendations for chlamydia control is still hindered by a lack of robust evidence about the natural history, transmission dynamics, risk of complications and effective interventions at the population level. Experts agreed that the current priorities for chlamydia control in EU/EEA Member States should be for resources, guidelines and training to improve primary prevention (including counselling), diagnostic capacity, and effective case and partner management – in the absence of further evidence of the effectiveness of screening. Considering the current evidence base, chlamydia control should be considered as part of a generic sexual health programme in the absence of evidence of a strong impact on prevalence or reproductive tract complications. There were discussions about the benefit of shifting towards an integrated sexual health strategy rather than separate chlamydia guidance. There was a request for suggested targets for levels of chlamydia testing coverage.

Discussions at the expert meeting strongly suggest that Member States are aiming to progress from level A (primary prevention) as the minimum level to level D (screening programme) as the most complex level. This interpretation of the guidance document has occurred despite clear statements that there was no recommendation to implement levels C (opportunistic testing) and D (screening programmes) because of the limited evidence of the benefits – and even potential harm – of screening at the population level. Experts agreed that a revised document should distinguish more clearly between the recommended activities and those that are still under evaluation. It was suggested that an updated guidance document should not recommend population level screening programmes because there was no evidence of their usefulness from RCTs.

It was suggested that a revised version could frame chlamydia control as part of generic sexual health services by promoting levels A and B more strongly. It was, however, pointed out that evidence for levels A, B, and C has not been systematically reviewed. Expert opinion at the meeting suggested that there were broader benefits and limited harm from primary prevention methods and that they should be offered.

A revised version of the guidance should clearly define 'case management', 'opportunistic testing' and 'screening programmes'. In particular, there is a need to distinguish clinically indicated chlamydia testing – based on an

assessment of the risk of exposure to infection – from opportunistic testing of asymptomatic individuals attending healthcare settings for any reason.

The discussion also covered the question of lack of evidence of cost-effectiveness of screening, and it was suggested that this would support removing screening from the guidance.

There is no evidence from RCTs about the effectiveness of antenatal screening for chlamydia. Antenatal screening was not addressed in the current guidance, but this review shows that several countries (including Germany) recommend screening of all pregnant women while others do not (including the United Kingdom, which has a population screening programme for young people and women seeking termination of pregnancy). This raised a broad discussion: healthcare of pregnant women is part of a wider remit of reproductive health rather than specifically sexual health. It was suggested that the updated guidance document should mention the lack of trials on screening efficacy during pregnancy and recommend further research.

The current guidance was considered to have a clinical component, and this was thought to have the potential to deter the policymaking audience we wish to attract. It was agreed that the aim of the guidance does not include clinical advice, and since it did not follow the recommended methods for the development of clinical guidelines these should be removed. The consensus opinion was that the guidance should refer to recommendations from an established clinical guideline group, e.g. the International Union against STI rather than reproduce published recommendations which may change. Similarly, there was a request for better information about chlamydia diagnostic methods, especially point-of-care tests, but again it was felt that this guidance should come from a clinical body rather than ECDC.

There was a wider discussion on the appropriate target audience of the guidance (Section 5.4.2.1) and that the exact content would largely depend on this. Furthermore, it was thought that the level of detail should be reduced if the target audience are policymakers.

There was a discussion about whether case studies from Member States would be beneficial, e.g. by sharing experiences (e.g. Belgium and its work with health insurance companies). Other topics that were suggested for inclusion in a revised version of the guidance included: eHealth developments, patient information sheets, retesting, reinfection.

5.4.2.3 Structure of ECDC guidance on chlamydia control

There was a discussion about whether the document should be translated into other languages, but the group did not perceive this to be essential, given that the audience would be mainly policymakers rather than local practitioners. Participants suggested that the length of the document could be shortened and the content could be more reader friendly. Tailoring the content more specifically to the target audience was also recommended.

A number of suggestions for alternative formats were made, but no decision was reached:

- One suggestion was for a portfolio of complementary documents that each target a specific audience, rather than a single document. Shorter documents could be produced with guidance relevant for a particular audience (e.g. policymakers, health insurance companies, clinicians), and/or focused on a specific topic (e.g. cost-effectiveness, case studies of implementation).
- Additional resources might include a toolkit with information on how to implement recommendations. Generic slide sets could be modified and used for specific target audiences (e.g. in advocacy to clinicians/policymakers).

5.4.2.4 Dissemination of ECDC guidance on chlamydia control

It was thought that relevant experts were currently aware of the guidance in the settings represented at the meeting. Dissemination channels were sometimes informal, e.g. email groups, and it was not possible to quantify this process. The expert meeting helped to raise awareness about the need to disseminate future versions of the guidance, and participants indicated that they would assist in disseminating the updated guidance.

It was clear that evaluating the success of a dissemination strategy is a complex and difficult undertaking. Finding citations in documents which were not published in peer-reviewed journals is notoriously difficult. In addition, there are only limited data from the website about accessed and downloaded documents. Furthermore, even if a document has reached its intended audience, this does not automatically imply that it is used as intended.

5.4.2.5 Implementation of ECDC guidance on chlamydia control

Overall there was evidence to suggest that the 2009 guidance had been well received by the chlamydia contact points in the Member States. Several examples were given of how it had been used in a variety of ways by different Member States. For example, Belgium used it as an advocacy tool, while Bulgaria used it to initiate the development of an ordinance. Germany cited the document in an application for funds. It was suggested that the results from the 2012 survey could be used to identify countries that may be able to benefit from the provision of scientific advice and tailored assistance from ECDC. The representatives from ECDC agreed to consider the feasibility of providing tailored assistance to countries that are interesting in improving their chlamydia control strategies.

5.4.2.6 The 2009 ECDC guidance on chlamydia control and the policymaking process

The process of evaluating the guidance document showed that standard academic research techniques are not able to explore the use of a document in the policymaking process. During the expert meeting, several representatives mentioned how they used the guidance document, but none of the representatives at the meeting was directly responsible for policymaking. Before revising the content and dissemination strategy of the guidance, further insights into the policymaking process would be helpful. It was acknowledged that the policymaking process was highly dependent on the local policy environment and there was no standardised process for formulating policy across the Member States. The lack of a homogenous policy environment was identified as a major challenge when trying to produce universal resource materials intended to inform the policymaking process.

5.4.2.7 Other emerging themes and topics

Discussions at the meeting highlighted that the challenges of chlamydia control vary in the different Member States. Resources available for chlamydia control interventions and the cost of nucleic acid amplification tests (NAATs) for chlamydia vary widely from country to country. In some settings the lack of financial resources means that chlamydia (or STIs in general) is not a priority for funding. This was felt to be a particular challenge in the period covered by the guidance which was published just after the financial crisis which led to dramatic reductions in public health budgets in many Member States.

The presentations at the meeting identified several gaps in research evidence. For example, the effectiveness of antenatal chlamydia screening is still unclear, as is the effectiveness of repeat opportunistic testing of asymptomatic people. The group suggested that the current programme of work should be supplemented by additional reviews of the relevant evidence base for primary prevention, case management, opportunistic screening, antenatal screening and novel testing methods, e.g. point of care tests. Some of these evidence summaries may fall outside the remit of ECDC.

Finally, there was agreement that involving the users of the guidance in its development (for example during the earlier stages of drafting) is a more favourable approach than providing a complete document. This might encourage wider use of the guidance at the country level, although it was recognised that this can be challenging in practice. ECDC representatives described a current public consultation pilot that is being completed in another policy area. It was agreed that the expert meeting had started the process of involving the users in the development process. It was proposed that participants at the meeting should be involved in drafting a revised version of the guidance (opt out possible); drafts would be shared by email.

Overall, there was agreement that the guidance should be updated in light of the increased evidence base which shows an equivocal performance of chlamydia screening. It was agreed that minor revisions would be most appropriate.

There was a commitment to build on the relationships formed at the meeting and involve the participants in the guideline revision process.

5.4.2.8 Research agenda

The following areas were suggested as priorities for future research:

- Evidence base for antenatal screening
- Evidence base for primary prevention for chlamydia and other STIs
- Evidence base for case management
- In-depth understanding of the policymaking process

6 Conclusions

The 2012 chlamydia control survey demonstrated a good awareness of the guidance in Member States (24/26) but dissemination was only reported by 33% (9/27) of countries, and the extent of this dissemination varied. Almost half of countries reported using the guidance to improve chlamydia control (11/25) but this was not linked to the level of chlamydia control activity or a change in the assigned level of chlamydia control activity between the two surveys. The guidance was reported to have been used in advocacy by 29% of respondents (7/24). No information was available about the use of the guidance in the policymaking process.

The expert meeting format of moderated discussions allowed the sharing of useful insights into the use of the guidance. The mixed methods approach (quantitative survey and qualitative meeting) provided an interesting overview and additional detail in areas of interest (presentation topics and moderated discussions). However, the number of participants at the meeting and the time available for discussions were limited and therefore only a sample of experiences was obtained. Unfortunately, policy leads from Member States were not represented in the meeting therefore it was not possible to obtain first-hand insights into the use of the guidance in policymaking.

It was challenging to study the use of the guidance in the policymaking process using standard academic research methods. Use of the guidance by policymakers was not visible, unless it was specifically reported by participants at the meeting. Academic publications provided evidence that the document had been read by a relatively small part of the research community, but this was not the target audience of the guidance, and this provides no useful information about the policy process. We conclude that there is little value in repeating a citation search for a policy document as the information obtained is not informative. However, if there is a perceived need for measuring the use of an ECDC document by the research community, it would be helpful if the initial publication was part of the peer-reviewed literature as this will ensure that it is indexed in suitable way to aid the search for subsequent citations (e.g. ResearchGate or Web of Science).

The web statistics described the access of the landing page for the guidance and reported fewer than 200 events between 2011 and 2013. The data on web access were limited and, critically, did not include the number of times the document was downloaded. For this guidance in particular, the available information did not cover the time when the document was launched and therefore does not provide useful information about the interest in the guidance during this critical window. Web statistics cannot provide information about the use of a document in policymaking. But as the available information increases this technique may be useful for evaluating a document's dissemination strategy.

The survey confirmed the widespread heterogeneity in chlamydia control policy across EU/EAA Member States which was interpreted to reflect differences in available resources, health priorities, and uncertainty in the empirical literature. This lack of robust evidence about the natural history, transmission dynamics, risk of complications and the effectiveness of interventions at the population level was considered to hinder the development of definitive recommendations for chlamydia control. The evidence base for chlamydia control has, however, developed since 2009 and in view of this it was felt that the guidance should be revised.

It was agreed that the policymaking process is highly dependent on the local policy environment, and that there is no standardised process for formulating policies across the Member States. Therefore it will be a major challenge for ECDC to produce a single resource that can be used to influence this process.

A revision of the guidance should:

- involve users of the guidance early on in the revision process;
- enhance the focus on the target audience (i.e. policymakers) or produce a portfolio of documents tailored to a range of target audiences;
- change the emphasis away from opportunistic testing and screening towards primary prevention, case management and partner notification;
- consider removing the 'stepwise' approach to avoid this being interpreted as a ladder;
- clarify key terms such as case management, opportunistic testing, screening programme;
- remove clinical content and instead reference informative sources; and
- consider including case studies from Member States.

This evaluation process did not specifically evaluate the dissemination strategy for the 2009 guidance but during this programme of research it became apparent that this information is needed before any revised version of the guidance is disseminated to ensure that an optimal approach is used.

ECDC should consider to:

- explore the possibility to offer targeted assistance to Member States in order to implement a chlamydia control strategy;
- consider the development of an implementation toolkit or other tools that can be used in advocacy.

Future research themes suggested:

- Evidence base for antenatal screening
- Evidence base for primary prevention for chlamydia and other STIs
- Evidence base for case management
- In-depth understanding of the policymaking process.

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Appendix 1. Summary of countries awareness and use of the guidance and change in category of chlamydia control activity, 2007 and 2012

Country	Aware of guidance	Guidance disseminated within country	Guidance used to improve chlamydia control	Guidance used for advocacy of chlamydia control	Movement in category of chlamydia control activity (2007 to 2012)
No organised control activities					
Ireland	X	X	X[i]	X	No change
Luxembourg	X				No change
Malta	X	X			No change
Portugal	X				No change
Slovakia	X	X			
Slovenia	X				No change
Case management					
Belgium	X	X		X	Change
Cyprus					
Italy	X		X[i]	X	No change
Case management including PN					
Czech Republic	X		X		Change
Hungary	X				No change
Liechtenstein					Change
Romania	X	X			Change
Spain	X	X	X	X	Change
Opportunistic testing					
Austria	X				Change
Bulgaria	X		X		Change
Denmark	X				No change
Estonia	X		X[i]		No change
Finland	X				Change
France	X		X		Change
Germany	X			X	Change
Iceland	X				No change
Latvia	X	X	X[i]	X	No change
Lithuania	X				Change
Netherlands	X	X	X		Change
Norway	X		X[i]		No change
Sweden	X	X	X[i]		No change
Screening programme					
United Kingdom	X				No change

[I] *These countries reported that the guidance had been used to improve chlamydia control but the independent assessment of their chlamydia control activity did not identify a change in the category of control provided. We have no data to report on the specific improvement in each setting, but it is reasonable to assume that control activities can improve in quality (e.g. uptake, access, acceptability) without leading to a change the level of control provided.*

Appendix 2. Chlamydia control in Europe survey questionnaire

Section on 'Guidance document on chlamydia control'

21. *New.* In 2009, ECDC published a guidance document on chlamydia control in Europe. Are you aware of the ECDC guidance document?

The document is available in the survey document library under 'additional documents'.
☐ No
☐ Yes

21.1 Comment:

22. *New.* Has this document been disseminated to STI or public health professionals in your country?

☐ No
☐ Yes

22.1 Please describe to whom.

23. *New*. Has the guidance been used for improvement of chlamydia control in your country, by: *(Tick all that apply, if'other', tick last option and specify)*

☐ Writing a new policy or strategy or guideline document on chlamydia control in my country
☐ Updating existing policy or strategy guideline documents on chlamydia control
☐ Improving diagnostic facilities or procedures for chlamydia testing
☐ Improving surveillance of chlamydia
☐ Training or education among professionals in the field of STI control
☐ Evaluating or reviewing existing chlamydia control framework
☐ No or not yet
☐ Specify your own value:

24. *New.* Has the guidance been used for advocacy for (the need to address) chlamydia control in your country: *(Tick all that apply, if 'other', tick last option and specify)*

☐ Drawing attention to and raising awareness for Chlamydia control among policymakers?
☐ Obtaining more funding and resources assigned to Chlamydia control
☐ Other advocacy goals
☐ None of the above

24.1 Please explain briefly how the guidance document was used to achieve this or why not.

Appendix 3. Agenda for ECDC consultation meeting on guidance evaluation (Stockholm, 20–21 March 2014)

Background

Chlamydia trachomatis is the most commonly reported bacterial sexually transmitted infection (STI) in EU/EEA, mostly affecting young heterosexual adults. More than 380 000 cases are reported yearly (ECDC STI surveillance report), and the prevalence of chlamydia infection in sexually experienced men and women ≤ 25 years in the general population is estimated to be 3.6 and 4.3%, respectively (European Centre for Disease Prevention and Control. Chlamydia control in Europe: literature review. Stockholm: ECDC; 2014).

EU/EEA Member States are implementing a wide range of policies, strategies and activities that can contribute to the control of chlamydia. To support policy decision-making processes and improve the consistency of chlamydia control activities, ECDC published a guidance document on chlamydia control in Europe in 2009. This policy advice document recommended a stepwise approach for the implementation of prevention and control practices.

Since December 2011, ECDC has coordinated a framework contract, implemented by a project team led by the University of Bern, Switzerland (Prof. Nicola Low). The aims are to: 1) review the scientific evidence for the epidemiology and natural history of chlamydia infection to improve estimates of the impact and cost-effectiveness of public health interventions to control chlamydia; 2) monitor progress and track changes in control policies and activities in EU/EEA Member States through a survey undertaken in 2012; and 3) evaluate the impact of the 2009 ECDC guidance document in policy decision-making processes in the region and to define the need for revision of the guidance and its specific recommendations.

Scope and purpose

This meeting will provide an opportunity for ECDC and the project team to explore, with invited experts, how the ECDC document been used by policy leaders in Member States, the current audience for the guidance, how the structure and content might be improved, and how ECDC should disseminate a revised guidance document and assist Member States to implement the content.

Invited experts will contribute to moderated discussions that will provide qualitative information about Member States' experiences with the use of the ECDC guidance document. Advice will be collected about areas of the guidance document that need to be revised. Experts will also give recommendations to ECDC on how to further support Member States in the prevention and control of chlamydia infection and its associated long-term complications.

Invited experts have been selected based on recognised expertise and in order to cover key aspects of chlamydia prevention and control policies in the EU/EEA.

Programme

Thursday, 20 March, 14:00–18:00

Welcome and introductions (30')

Scope and purpose of the meeting (Otilia Sfetcu, Helen Ward, 5')

Summary of 2009 Guidance: development, aims and stepwise approach to control (Helen Ward, 10')

Overview of the ECDC framework contract (Otilia Sfetcu, 5')

Overview of methods for evaluating the ECDC guidance on chlamydia prevention and control (Bethan Davies, 10')

Session one: Has there been a change to the evidence base underpinning the 2009 Guidance? (75')

Epidemiology of chlamydia in EU/EEA Member States, the risk of long-term sequelae and the effectiveness and cost-effectiveness of screening: summary of findings from reviews of the literature (Nicola Low, 30')

Discussion 1: Should the stepwise approach to control be changed? (Moderator: Helen Ward, 45')

Break 15:45–16:15

Session two: Chlamydia control in Europe (2007–12): Understanding the process of making and maintaining chlamydia control policy and the role of the 2009 guidance (105')

How have chlamydia prevention and control activities and policies in Europe changed between 2007 and 2012: summary of findings from the survey of Member States (Ingrid van den Broek, 15')

What role did the 2009 guidance play in shaping chlamydia prevention and control policies in Europe: preliminary findings from the evaluation (Bethan Davies, 10')

Country presentation 1 – Germany (10')

Country presentation 2 – Belgium (10')

Country presentation 3 – Bulgaria (10')

Country presentation 4 – Estonia (10')

Discussion 2: What are the key messages about chlamydia control policy from country presentations; reflection on similarities/differences to your experience; themes not explored by country presentations. What are the key messages about the role of ECDC guidance in Member State policy development? (Moderator: Helen Ward, 40')

Country presentation: The experience of chlamydia control policy in the Netherlands (Jan van Bergen, 30')

Friday, 21 March, 08:30-12:00

Session three: Who is the audience for the guidance and are they being reached? (90')

How has the guidance been accessed through the website: preliminary web statistics (Caroline Daamen, 10')

How has the guidance been cited: preliminary findings from WP4 (Bethan Davies, 10')

Discussion 3: Who is the appropriate target audience for the guidance? How could the current guidance be changed to reflect this? (Moderator: Helen Ward, 35')

Discussion 4: How can ECDC increase dissemination and awareness of the guidance? (Moderator: Helen Ward, 35')

Break 10.00–10.30

Session four: The way forward for chlamydia control and prevention in EU/EEA Member States (90')

Overview (Bethan Davies, Helen Ward, 10')

Discussion 5: Does the guidance need to change? How could the guidance be changed to make it more useful? Should the guidance include case studies of guidance implementation? (Moderators: Andrew Amato, Nicola Low, Helen Ward, 30')

Discussion 6: How can ECDC most effectively support countries in their efforts for prevention and control? (Moderators: Andrew Amato, Nicola Low, Helen Ward, 40')

Concluding comments (Andrew Amato, Otilia Sfetcu, Nicola Low, Helen Ward, 10')

List of participants

	Last Name	First Name	Country
Invited experts			
1	Low	Nicola	Switzerland
2	Ward	Helen	United Kingdom
3	Davies	Bethan	United Kingdom
4	Bremer	Viviane	Germany
5	Konte	Vasileia	Greece
7	Kløvstad	Hilde	Norway
8	Jose Borrego	Maria	Portugal
9	Uusküla	Anneli	Estonia
10	Georgieva	Viara	Bulgaria
11	Balla	Eszter	Hungary
12	Verbrugge	Ruth	Belgium
13	van de Broek	Ingrid	Netherlands
14	van Bergen	Jan	Netherlands
15	Mayer	Dijana	Croatia
16	Velicko	Inga	Sweden
17	Chuchu-Schindele	Anna	Sweden
ECDC staff members			
18	Amato	Andrew	
19	Sfetcu	Otilia	
20	Spiteri	Gianfranco	
21	Barragan	Susana	
22	Daamen	Caroline	
22	de Carvalho Gomes	Helena	