SIGN
Scottish Intercollegiate Guidelines Network

NHS
Quality Improvement Scotland

Management of Genital Chlamydia Trachomatis Infection

A resource and budget report

March 2009

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1 EXECUTIVE SUMMARY

The objective of this resource and budget impact report is to provide each NHS board with resource and cost information for implementation of those recommendations in SIGN Guideline 109 Management of Genital *Chlamydia trachomatis* Infection[1] judged to have a material impact on resources.

The methodology adopts proven processes and principles. Members of the guideline development group and other experts have provided advice and participated in peer review.

Budget impact of recommendations

Chlamydia trachomatis is the most prevalent bacterial sexually transmitted infection in Scotland, with 17,928 cases of chlamydial infection diagnosed in 2007, a 45% rise since 2002. This was 8% of the 223,489 tests performed for chlamydia. This percentage varies with age and gender.

The total costs of the three recommendations with a material resource impact are estimated to be £533,100 in the first year. The additional resources required across Scotland are 3,900 general practitioner (GP) hours, 1,700 practice nurse hours, 560 health adviser hours, 60 genito-urinary medicine (GUM) consultant hours and 1,070 receptionist/administrator hours. The remaining expenditure is mainly on 13,000 laboratory tests (£189,000) and drugs for 7,000 treatments (£48,000). These resources and costs exclude the island NHS boards.

The recommendations will reduce the spread of infection and reinfection, leading to reduced interview, testing and treatment costs in future, as well as patient and clinical benefits. These benefits have not been quantified and costed.

Sensitivity analyses show that these costs would be reduced by £98,000 if a health adviser or practice nurse trained/supported by a health adviser is available to substitute for the GP and permit a balance of '30% GP/70% nurses' instead of '70% GP/30% nurses'. This would reduce the GP input to 1,700 hours but require 3,900 practice nurse/health adviser hours.

Sensitivity analyses also show that these costs would increase by £80,000 if partner notification, follow-up and subsequent partner treatment interviews take 15, not 10, minutes, and by £40,000 if 95%, not 70%, of partners are treated immediately to reduce the risk of reinfection, allowing that a small proportion of patients will decline treatment.

The three guideline recommendations judged to have a material resource impact are:

Guideline recommendation (Section 6): Patients diagnosed with chlamydia must receive a partner notification interview

The estimated cost of 10,000 additional partner notifications is:

Partner notification interviews	£80,530
Partner testing	£76,140
Partner treatment	£71,790
TOTAL	**£228,460**

Guideline recommendation (Section 5.8): All patients treated for chlamydia should be given a follow-up interview within 2–4 weeks of treatment

The estimated cost of 10,000 additional follow-up interviews is:

Follow-up interviews	£80,530
Testing	£42,300
Treatment	£39,880
TOTAL	**£162,710**

Guideline recommendation (Section 5.8.1): Test for reinfection should be recommended at 3–12 months, or sooner if there is a change of partner

The estimated cost of 5,000 additional reinfection interviews is:

Unsuccessful calls to previous cases	£10,720
Reinfection interviews	£44,830
Testing	£70,500
Treatment	£15,880
TOTAL	**£141,930**

Overlap with NHS Quality Improvement Scotland Standards for sexual health services

In March 2008, NHS Quality Improvement Scotland (NHS QIS) published nine service-level Standards for Sexual Health Services[2] and a costing template for Standard 4[3]. Many of the activities costed under the partner notification SIGN guideline recommendation are also necessary to meet the standards on partner notification and testing for young people. Additional expenditure of £150,000 was estimated to be the cost of implementing Standard 4 (Partner notification). These activities are also costed in the estimate of £228,460 for the equivalent SIGN guideline recommendation. For Standard 3 (Services for young people), £50,000 of the cost of implementing the testing for the three SIGN guideline recommendations is included in the estimate of £296,705. The additional first year costs to provide the key recommendations in the SIGN guideline are thus £333,100.

2 INTRODUCTION

2.1 Objective

The objective of this resource and budget impact report is to provide each NHS board with resource and cost information to assist in implementing those recommendations in SIGN Guideline 109 Management of Genital *Chlamydia trachomatis* Infection[1] judged to have a material impact on resources. A costing template to enable users to develop solutions according to their local circumstances is also available[4]. This report does not reproduce the SIGN guideline and should be read in conjunction with it.

A recent Audit Commission report[5] concluded that the lack of robust information on the resources required and associated costs is one of the biggest difficulties in developing plans to implement clinical guidelines. This resource and budget impact report aims to provide such information to support implementation of the three recommendations in NHS boards. It does not attempt to cost all aspects of the current levels of chlamydia interviewing, testing and treatment.

2.2 Target Users

This resource and budget impact report will be of interest to health professionals involved in budgeting, finance and implementation in primary care, genito-urinary medicine (GUM) and family planning clinics, hospitals, community health services and voluntary and community organisations.

2.3 Document overview

Section 3 describes the methodology adopted. Section 4 reports the estimated budget impact for the selected guideline recommendations. It starts with an overview of the testing and treatment of chlamydia, including the current situation in Scotland. For each costed recommendation more detailed information is provided, together with sensitivity analyses to assess possible alternatives. The Appendices acknowledge those who have contributed to the development of this report, include more detailed information on the budget impact assessment process and implementing guidelines and list references.

Further information

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3 METHODOLOGY

3.1 Principles, process and participants

The methodology adopted the:

- Process set out in NICE developing costing tools methods guide[6].
- Principles in two recent reports on budget impact analysis[7,8].
- Findings and recommendations in the Audit Commission report on Managing the financial implications of NICE guidance[5].
- Evaluation of the Resource Impact tools developed alongside the SIGN coronary heart disease (CHD) guidelines[6].

Members of the guideline development group and other experts provided advice and also participated in peer review.

The recommendations in the SIGN Guideline 109[1] were assessed as to the likelihood of them having a material impact on the resources of NHSScotland. Those selected were then costed, together with sensitivity analyses where relevant.

Costing the recommendations at NHS board level requires assessment of several complex elements. A costing template is provided to allow each NHS board to modify the assumptions to assess the impact on local budgets.

The purpose of providing these data is as an aid to implementation of SIGN Guideline 109[1] within NHS boards. The relevant resource use and costs will vary depending on the context and purpose of the decision maker, and users should adapt the estimated values to suit their needs.

3.2 Stages of the costing process for mainland NHS boards

Discussions with the SIGN guideline development group chair and selected group members identified:

- Which recommendations were likely to require significant resources to implement.
- If any recommendations were likely to result in significant savings through ending ineffective practice or improving current ways of working.
- Which recommendations might cause a material change to the numbers of patients being managed.

Only those recommendations judged to have a potentially material cost impact were costed.

The key cost drivers for each recommendation were identified by:

- Using demographic/epidemiological data published by the Information Services Division (ISD) and Health Protection Scotland (HPS) on the number of people affected.

- A literature search to identify studies assessing or evaluating the costs and economic aspects of chlamydia. This included relevant studies identified in the systematic review of the literature carried out as part of the development of the SIGN guideline.
- Using expert opinion and published information, mainly from relevant websites.
- Assessing the resources involved in current and recommended practices.
- Applying unit cost information obtained in the main from published sources.

Simple spreadsheet models were used to calculate the national and NHS board cost impact for each recommendation, with sensitivity analyses provided where appropriate.

Thanks to the individuals listed in Appendix 1 who provided peer review comments and the estimates and report were revised in light of comments received.

Where relevant, reference was made to the values in the NHS QIS report on the budget Impact of the sexual health standards in Scotland[10], published in 2008. That report and associated templates followed a similar methodology and peer review process.

3.3 Process for island NHS boards

The island NHS boards have been excluded from the assessments as their processes are significantly different. However, the basis of the calculations and assumptions are given, so they can decide how best to apply them to the local situation.

4 BUDGET IMPACT OF RECOMMENDATIONS

4.1 Background

Chlamydia trachomatis is the most prevalent bacterial sexually transmitted infection in Scotland, with 17,928 cases of chlamydial infection diagnosed in 2007, a 45% rise since 2002[11]. This was 8% of the 223,489 tests performed for chlamydia. This percentage varies with age and gender as shown in Table 4–1.

Table 4-1 Total number of tests performed (% samples testing positive) in 2007[12]

		Total number of tests performed (% samples testing positive)*			
		Men		**Women**	
		15–24 years	**25–49 years**	**15–24 years**	**25–49 years**
NHS board region of testing	Ayrshire & Arran	1,398 (17)	1,250 (10)	4,756 (14)	5,304 (3)
	Borders	302 (20)	382 (12)	1,298 (10)	1,320 (3)
	Dumfries & Galloway	641 (21)	423 (12)	2,623 (12)	3,014 (2)
	Fife	1,442 (20)	1,360 (11)	5,350 (11)	5,971 (3)
	Forth Valley	1,382 (19)	1,017 (11)	4,377 (12)	4,180 (3)
	Grampian	2,971 (18)	3,239 (9)	10,337 (10)	10,934 (2)
	Greater Glasgow and Clyde	6,467(15)	8,171 (8)	21,758 (10)	23,109 (3)
	Highland	931 (19)	1,106 (9)	3,607 (10)	4,407 (2)
	Lanarkshire	1,434 (22)	2,276 (11)	5,957 (13)	9,036 (3)
	Lothian	4,505 (13)	7,511 (8)	13,617 (10)	16,157 (3)
	Tayside	2,392 (19)	2,220 (10)	6,829 (13)	6,728 (3)
	Scotland (excluding islands)	**23,865 (17)**	**28,955 (9)**	**80,509 (11)**	**90,160 (3)**

*Data provided from all chlamydia testing laboratories in Scotland.

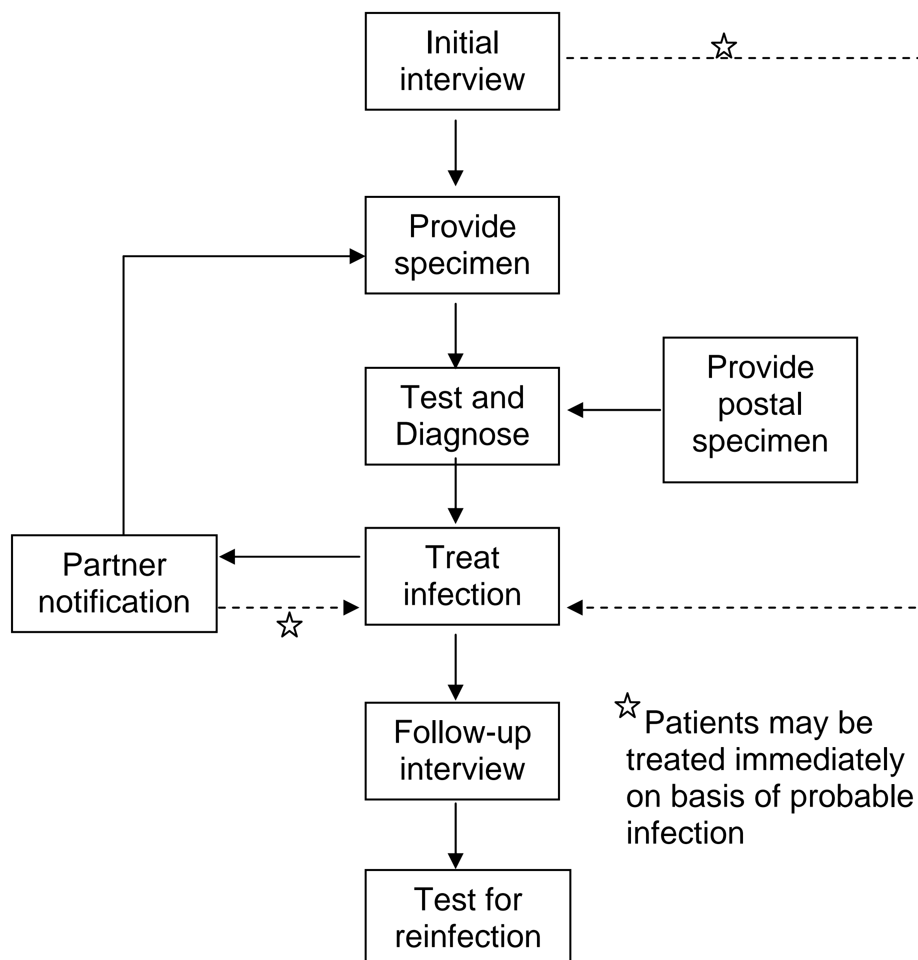
The literature search identified two relevant studies on the costs associated with chlamydia testing and treatment:

- A pilot study was undertaken in Portsmouth and the Wirral[13] funded by the Department of Health to evaluate the costs and feasibility of opportunistic chlamydia screening[14].
- A Chlamydia Screening Studies (ClaSS) study was undertaken in the Bristol and Birmingham areas, to evaluate the economic and other aspects of chlamydia screening[15].

In 2007, NICE published a costing report[16] and template[17] on Interventions to Reduce the Transmission of Sexually Transmitted Infections, which used some of the cost and related information from the Portsmouth and Wirral model. In 2008, NHS QIS published a report on the budget impact of the sexual health standards in Scotland[10]. Evidence has been sourced from these documents for use in this report.

A structured approach was used to develop a costing model and assess the budget impact of each of the guideline recommendations (see Appendix 2). The patient pathway for testing and treatment of chlamydia is shown in Figure 4.1.

Figure 4-1 Patient pathway for testing and treatment of chlamydia



The costing model based on this pathway only focused on the stages involved in those recommendations with a significant resource impact, as this was not a full costing exercise. The three significant recommendations involved interviewing, testing and treatment associated with partner notification, follow-up and testing for reinfection.

Difficulties were experienced because of the range of professionals and settings in which patients are seen, eg GUM clinic, GP practice, hospital, family planning clinic, and the variation in practice in NHS boards. For example, postal testing is used extensively in some NHS boards, but in varying formats, while others do not use this form of testing. The collection of information outwith GUM clinics has been limited to date, leading to problems in building a comprehensive bottom-up model for costing. The lack of appropriate data, particularly regarding target populations, made it difficult to assess current activity and to estimate how the future level of activity may change. To overcome these limitations, assumptions were developed, which were tested for reasonableness with members of the guideline development group and other experts in the field, and confirmed as accurate for Scotland.

The estimates of the costs and inputs associated with the relevant recommendations are shown in Table 4-2. These are used in costing the three guideline recommendations that follow in Section 4.2.

Table 4-2 Costs and inputs for testing and treatment of chlamydia

Parameters	Units	Cost £*	Source
Partner notification interview		**£8.05**	
GP/nurse time for interview	10 min		Confirmed as accurate for Scotland.
% GP/nurse time	70%/30%		Confirmed as accurate for Scotland.
Number of cases per index	1.2+		+SHS report[10] values confirmed as accurate for Scotland.
% partners attending	45%+		
New infections found	70%+		
Follow-up interview		**£8.05**	
GP/nurse time for interview	10 min		Confirmed as accurate for Scotland.
% GP/nurse time	70%/30%		Confirmed as accurate for Scotland.
Number of new cases per index	0.3		Confirmed as accurate for Scotland.
Test for reinfection interview – GP practice		**£12.08**	
Receptionist/staff member	5 min		Confirmed as accurate for Scotland.
GP/nurse time for interview (including telephone)	10+5 min		Confirmed as accurate for Scotland.
% GP/nurse time	70%/30%		Confirmed as accurate for Scotland.
% new infections	20%		Estimate of Group Chair.
Test for reinfection interview – GUM clinic		**£5.85**	
Receptionist	5 min		Confirmed as accurate for Scotland.
GUM consultant/health adviser time for reinfection and treatment interview (including telephone)	10+5 min		Confirmed as accurate for Scotland.
% GUM consultant/health adviser	10%/90%		Confirmed as accurate for Scotland.
% new infections	20%		Estimate of Group Chair.
Test and Diagnose**		**£14.10**	
Test materials and personnel			Adams[14] at 2008 rates.
Treatment**		**£18.99**	
Azithromycin	4x250mg		BNF 2008:56 £8.10.
Doxycycline	28x50mg		BNF 2008:56 £2.16.
% azithromycin compared to doxycycline	80%/20%		Confirmed as accurate for Scotland.
GP/Nurse time for treatment (including telephone)	10+5 min		Confirmed as accurate for Scotland.
% GP/nurse time	70%/30%		Confirmed as accurate for Scotland.

Notes:
No screening is included, in line with section 4.2.1 of the SIGN guideline
* 2008 prices
**Costs for testing and treatment are assumed to be the same for all types of patient

Costs per minute (including NI/Superannuation):
GUM consultant - £1.28 (mid-range £150,000 per annum)
GP - £1.03 (mid-range £120,000 per annum)
Practice nurse - £0.29 (Agenda for Change mid-Band 6 £34,151)
Receptionist - £0.17 (Agenda for Change mid-Band 3 £19,574)

4.2 SIGN guideline recommendations with significant resource impact

Guideline recommendation (Section 6): Patients diagnosed with chlamydia must receive a partner notification interview

The guideline states 'The treatment of sexual contacts prior to resumption of sexual intercourse is the strongest predictor for preventing reinfection. Therefore, effective partner notification forms an essential component of management of chlamydial infection'.

Assumptions

The cost of implementing this recommendation has three elements, being the additional interviews of the index patients, testing of new partners identified (assumed to be 1.2 cases per index, of whom 45% attend) and then treatment of partners testing positive (assumption 70%).

It is assumed 100% of all patients diagnosed in GUM clinics are currently interviewed. It is estimated that there could be 10,000 extra interviews and all within the GP setting. This is based on the 9,461 (53%)[19] currently diagnosed and managed in non-GUM clinic settings, plus an anticipated increase in positive cases due to better targeting of testing (this has been confirmed with the chair of the guideline development group). There are some partner notification interviews taking place outwith GUM currently, but without documentation to enable partner notification. The most reliable information about the number of new cases that will be identified with a positive diagnosis outwith GUM clinics is in the analysis of laboratory tests[12]. Therefore, the number of interviews for each NHS board has been calculated on this basis. There will be some variation where the laboratory used is situated in a different NHS board area from the GP practice. The benefits from reduced infection due to this recommendation have not been costed. The detailed assumptions are shown in Table 4-2.

Table 4-3◊ Cost of additional partner notification interviews, tests and treatment

NHS board	Additional partner notification interviews	COST			
		Partner notification interviews	Partner testing	Partner treatment	TOTAL
Ayrshire & Arran	656	£5,280	£4,990	£4,710	£14,980
Borders	148	£1,190	£1,130	£1,060	£3,380
Dumfries & Galloway	467	£3,760	£3,560	£3,350	£10,670
Fife	699	£5,630	£5,320	£5,020	£15,970
Forth Valley	641	£5,160	£4,880	£4,600	£14,640
Grampian	1,404	£11,300	£10,680	£10,070	£32,050
Greater Glasgow and Clyde	2,066	£16,640	£15,730	£14,840	£47,210
Highland	517	£4,170	£3,940	£3,710	£11,820
Lanarkshire	895	£7,210	£6,820	£6,430	£20,460
Lothian	1,551	£12,490	£11,810	£11,140	£35,440
Tayside	956	£7,700	£7,280	£6,860	£21,840
Scotland (excluding islands)	**10,000**	**£80,530**	**£76,140**	**£71,790**	**£228,460**

◊Figures quoted in tables 4-3–4-11 are subject to rounding.

Sensitivity analyses

Four sensitivity analyses have been undertaken.

- The first calculates the costs of partner notification and subsequent partner treatment interviews if a health adviser or practice nurse trained/supported by a health adviser is available to replace the GP and permit a balance of 30% GP/70% nurses instead of 70% GP/30% nurses. This would reduce the average cost for a 10 minute interview from £8.05 to £5.12.
- As many of these partners may already be notified, the second analysis calculates the testing costs if there are 0.6, not 1.2, cases per index.
- The third calculates the costs of partner notification interviews if they take 15, not 10, minutes. This would increase the average cost for an interview from £8.05 to £12.08.
- The partner treatment costs are calculated if all are treated immediately to reduce the risk of reinfection, allowing that a small proportion of patients will decline treatment. Thus, 95% not 70% would be treated.

Table 4-4 Sensitivity analyses using 30% GP/70% nurse for partner notification and reduced level of partner testing

NHS board	COST		
	Partner notification interviews	**Partner treatment**	**Partner testing**
Ayrshire & Arran	£3,350	£3,620	£2,500
Borders	£760	£820	£560
Dumfries & Galloway	£2,390	£2,580	£1,780
Fife	£3,580	£3,850	£2,660
Forth Valley	£3,280	£3,530	£2,440
Grampian	£7,180	£7,730	£5,340
Greater Glasgow and Clyde	£10,570	£11,390	£7,870
Highland	£2,640	£2,850	£1,970
Lanarkshire	£4,580	£4,940	£3,410
Lothian	£7,930	£8,550	£5,900
Tayside	£4,890	£5,270	£3,640
Scotland (excluding islands)	**£51,150**	**£55,130**	**£38,070**

Table 4-5 Sensitivity analyses using 15 minutes for partner notification interviews and treating 95% of partners

NHS board	COST	
	Partner notification interviews	Partner treatment
Ayrshire & Arran	£7,920	£6,390
Borders	£1,790	£1,440
Dumfries & Galloway	£5,640	£4,560
Fife	£8,440	£6,810
Forth Valley	£7,740	£6,240
Grampian	£16,950	£13,680
Greater Glasgow and Clyde	£24,960	£20,130
Highland	£6,250	£5,040
Lanarkshire	£10,820	£8,720
Lothian	£18,740	£15,110
Tayside	£11,550	£9,310
Scotland (excluding islands)	**£120,800**	**£97,430**

Guideline recommendation (Section 5.8): All patients treated for chlamydia should be given a follow-up interview within 2-4 weeks of treatment

The guideline states 'Clinical guidelines advise that patients should be re-interviewed to ensure compliance with treatment, avoidance of risk of re-exposure to infection and that all sexual partners have been contacted'. A study[15] showed a significant increase in the success rate for partner notification after setting up a specific follow-up clinic.

Assumptions

It is assumed that all people diagnosed in GUM clinics - 70% of men and 23% of women (analysis provided by Dr Lesley Wallace, Health Protection Scotland, 6 November 2008) - are currently interviewed. The chair of the guideline development group estimated that potentially there will be 10,000 extra interviews covering the remainder of patients. It is assumed that, following the interview, 0.3 new cases per index case are tested and of these 70% are found to be positive and require treatment. The detailed assumptions are shown in Table 4-2. There will be a reduction in reinfection due to this but the potential benefits have not been costed.

Table 4-6 Cost of additional follow-up interviews, tests and treatment

NHS board	Follow-up interviews	COST			
		Follow-up interviews	Testing	Treatment	TOTAL
Ayrshire & Arran	656	£5,280	£2,770	£2,620	£10,670
Borders	148	£1,190	£630	£590	£2,410
Dumfries & Galloway	467	£3,760	£1,980	£1,860	£7,600
Fife	699	£5,630	£2,960	£2,790	£11,380
Forth Valley	641	£5,160	£2,710	£2,550	£10,420
Grampian	1,404	£11,300	£5,930	£5,600	£22,830
Greater Glasgow and Clyde	2,066	£16,640	£8,740	£8,240	£33,623
Highland	517	£4,170	£2,190	£2,060	£8,420
Lanarkshire	895	£7,210	£3,790	£3,570	£14,570
Lothian	1,551	£12,490	£6,560	£6,190	£25,240
Tayside	956	£7,700	£4,040	£3,810	£15,550
Scotland (excluding islands)	**10,000**	**£80,530**	**£42,300**	**£39,880**	**£162,713**

Sensitivity analyses

Three sensitivity analyses have been undertaken:

- The first calculates the costs of follow-up interviews and subsequent partner treatment if a health adviser or practice nurse trained/supported by a health adviser is available to replace the GP and permit a balance of 30% GP/70% nurses instead of 70% GP/30% nurses. This would reduce the average cost for a 10 minute interview from £8.05 to £5.12.
- The second calculates the costs of follow-up interviews if they take 15, not 10, minutes. This would increase the average cost for an interview from £8.05 to £12.08.
- The partner treatment costs are calculated if all are treated immediately to reduce the risk of reinfection, allowing that a small proportion of patients will decline treatment. Thus, 95% not 70% would be treated.

Table 4-7 Sensitivity analyses using 30% GP/70% nurse for follow-up and partner treatment

NHS board	COST	
	Follow-up interviews	Partner treatment
Ayrshire & Arran	£3,350	£2,010
Borders	£760	£460
Dumfries & Galloway	£2,390	£1,430
Fife	£3,580	£2,140
Forth Valley	£3,280	£1,960
Grampian	£7,180	£4,300
Greater Glasgow and Clyde	£10,570	£6,330
Highland	£2,640	£1,580
Lanarkshire	£4,580	£2,740
Lothian	£7,930	£4,750
Tayside	£4,890	£2,930
Scotland (excluding islands)	**£51,150**	**£30,630**

Table 4-8 Sensitivity analyses using 15 minutes for partner notification interviews and treating 95% of partners

NHS board	COST	
	Partner notification interviews	Partner treatment
Ayrshire & Arran	£7,920	£3,550
Borders	£1,790	£800
Dumfries & Galloway	£5,640	£2,530
Fife	£8,440	£3,780
Forth Valley	£7,740	£3,470
Grampian	£16,950	£7,600
Greater Glasgow and Clyde	£24,960	£11,180
Highland	£6,250	£2,800
Lanarkshire	£10,820	£4,850
Lothian	£18,740	£8,400
Tayside	£11,550	£5,170
Scotland (excluding islands)	**£120,800**	**£54,130**

Guideline recommendation (Section 5.8.1): Test for reinfection should be recommended at 3-12 months, or sooner if there is a change of partner

The guideline states 'Those who have already been diagnosed with and treated for chlamydia have the next highest prevalence after the partners of patients with chlamydial infection. It is essential that chlamydia testing is targeted at those groups with the highest prevalence in order to obtain maximum returns for investment of resource'. Some of these will already be re-tested, though it is probable that the majority will not.

Assumptions

The majority of such interviews are likely to take place by telephone. It is assumed that:

- No setting currently undertakes systematic re-testing at 3–12 months.
- On implementation, a staff member in all settings will attempt to contact all cases who have tested positive in the previous 12 months (approximately 18,000 contacts per year).
- Many of these calls will be unsuccessful because no telephone number has been given, the number has changed, the call is not answered or the person refuses an interview. It is assumed that the mean administration and call time for all 13,000 failed or unsuccessful calls will be 5 minutes.
- Of those contacted, 5,000 people - approximately 30% of the total cases (estimate from chair of the guideline development group) - will be interviewed for 10 minutes by telephone or return to the GUM clinic or GP practice, in addition to the 5 minutes spent contacting them. This is split 50% GUM clinics/50% GP setting.
- Of those tested, 20% will have an infection and require treatment (based on the LaMontagne study[18]).

The benefits from reduced infection due to this recommendation have not been costed. The detailed costing assumptions are shown in Table 4-2.

Table 4-9 Costs of tests for reinfection at 3–12 months

NHS board	Reinfection interviews	COST				
		Failed calls	Reinfection interviews	Testing	Treatment	TOTAL
Ayrshire & Arran	295	£700	£2,750	£4,160	£960	£8,570
Borders	76	£150	£670	£1,070	£240	£2,130
Dumfries & Galloway	137	£360	£1,530	£1,930	£490	£4,310
Fife	318	£740	£2,950	£4,490	£1,030	£9,210
Forth Valley	255	£530	£2,490	£3,600	£850	£7,470
Grampian	561	£1,040	£5,470	£7,910	£1,870	£16,290
Greater Glasgow and Clyde	1,371	£2,830	£11,240	£19,330	£4,140	£37,540
Highland	202	£450	£1,990	£2,840	£680	£5,960
Lanarkshire	414	£990	£3,820	£5,840	£1,340	£11,990
Lothian	932	£1,840	£7,870	£13,140	£2,860	£25,710
Tayside	439	£1,090	£4,050	£6,190	£1,420	£12,750
Scotland (excluding islands)	**5,000**	**£10,720**	**£44,830**	**£70,500**	**£15,880**	**£141,930**

Sensitivity analyses

Sensitivity analyses have been undertaken to calculate the costs of follow-up interviews and subsequent partner treatment if a health adviser or practice nurse trained/supported by a health adviser is available to replace the GP and permit a balance of 30% GP/70% nurses instead of 70% GP/30% nurses. This would reduce the average cost for a 10 minute interview from £8.05 to £5.12.

Table 4-10 Sensitivity analyses using 30% GP/70% nurse for reinfection interviews and treatment

NHS board	COST	
	Reinfection interviews	Treatment
Ayrshire & Arran	£2,030	£810
Borders	£510	£210
Dumfries & Galloway	£1,010	£390
Fife	£2,180	£880
Forth Valley	£1,790	£710
Grampian	£3,920	£1,560
Greater Glasgow and Clyde	£8,970	£3,690
Highland	£1,420	£560
Lanarkshire	£2,830	£1,140
Lothian	£6,160	£2,520
Tayside	£3,000	£1,210
Scotland (excluding islands)	**£33,820**	**£13,680**

Impact of guideline recommendations

The total costs of implementing the three key recommendations are estimated to be £533,100. Based on the amount of time involved in interviews, the additional resources required across Scotland are 3,900 GP hours, 1,700 practice nurse hours, 560 health adviser hours, 60 GUM consultant hours and 1,070 receptionist or staff member hours. The remaining expenditure is mainly on 13,000 laboratory tests (£189,000) and drugs for 7000 treatments (£48,000).

Sensitivity analyses show that the costs would be reduced by £98,000 if a health adviser or practice nurse trained/supported by a health adviser is available to replace the GP and permit a balance of 30% GP/70% nurses instead of 70% GP/30% nurses. This would require 1,700 GP hours and 3900 practice nurse/health adviser hours.

Overlap with NHS Quality Improvement Scotland sexual health standards

In April 2008, NHS QIS published nine service-level standards for sexual health services[2] and a costing template[3]. Many of the activities costed under the partner notification SIGN guideline recommendation are also necessary to meet the standard on partner notification. Additional expenditure of £150,000 was estimated to be the cost of implementing this specific standard. These activities are also costed in the estimate of £228,460 for the equivalent SIGN guideline recommendation.

Currently, six NHS boards are not carrying out sufficient tests to meet Standard 3 (Services for young people). The number of additional tests and the cost towards meeting this standard that are included in meeting these guideline recommendations are shown in Table 4-11.

Table 4-11 Additional tests and costs already included in the cost of meeting Standard 3 services for young people

NHS Board	TESTS						Cost of additional tests of under 25s∇
	Number of partner notification tests	Follow-up partner testing	Re-testing	Total additional tests	Of which number of under 25s	Additional tests towards meeting Standard 3[7]	
Ayrshire & Arran	354	197	295	846	410	2,082	£9,914
Borders	80	45	76	200	97	567	£2,348
Fife	377	210	318	905	435	1,510	£10,535
Forth Valley	346	192	255	793	417	1,409	£10,087
Highland	279	155	202	636	287	266	£6,437
Lanarkshire	484	269	414	1,166	461	6,426	£11,154
Total cost of tests already included in costing sexual health standards							**£50,475**

∇ Cost of the additional tests for under 25s to meet the SIGN guideline recommendations, with the exception of NHS Highland, where only 266 of the tests were included in costing the sexual health standards. They are costed at £24.20 per test, the figure used in costing the standards.

4.3 Exclusions and limitations

There are several limitations with this report. In particular, there is considerable uncertainty as to what comprises current clinical practice in each NHS board. The limitations and exclusions are set out in Appendix 3.

Appendix 1 Report development

Many thanks to all who have given their time, expertise and knowledge to inform this report. We would like to thank the following members of the guideline development group for their input and support:

Dr Gordon Scott (Chair)	Consultant in Genito-urinary Medicine	Royal Infirmary of Edinburgh
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Dr Elizabeth Daniels	General Practitioner	Keith Health Centre, Moray
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We are also very grateful to the following experts for their contribution:

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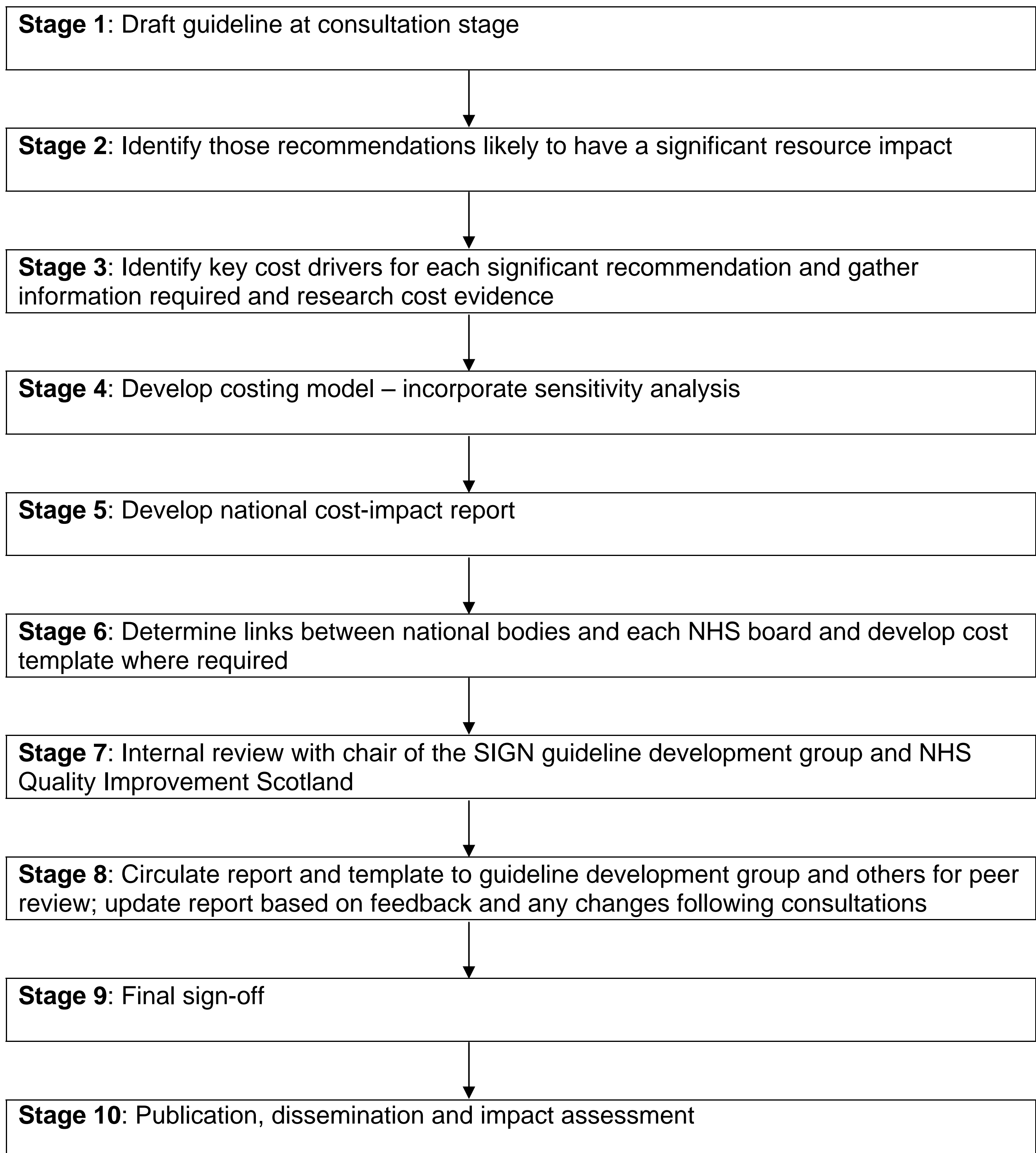
Lisa Wilson	Health Economist	NHS Quality Improvement Scotland
Dr Elisabeth Adams	Statistics, Modelling and Bioinformatics Department	Health Protection Agency
Marie Kernec	Programme Manager	National Chlamydia Screening Programme

Appendix 2 Budget impact assessment process



Appendix 3 Implementing guidelines

The purpose of NHS Quality Improvement Scotland (NHS QIS) is to drive improvement in the quality and safety of healthcare for the people of Scotland through the provision and use of knowledge. NHS QIS is committed to increasing the implementation support it provides to NHSScotland and is developing a range of tools to achieve this.

Recent reports on conducting budget impact analyses have concluded that:

- Providing information on the resources required and associated costs of guidance is critical to implementation[5].
- Resource/budget impact tools should be considered routinely as an adjunct to clinical guidelines as valuable decision aids[9].

Given such evidence, NHS QIS has worked alongside the SIGN guideline development group to quantify the resources and related costs required to implement the key guideline recommendations in NHSScotland and the NHS boards.

Exclusions and limitations

The analyses do not extend to quantifying the clinical benefit and associated financial savings from implementing the recommendations. For example, undertaking more intensive partner notification, follow-up and re-testing should lead to a reduction in the number of future infections, reinfections and complications. Any such reduction will avoid certain activity costs which would have arisen due to the need to test and treat the infection. However, modelling forecast infection rates through time before and after the introduction of these recommendations would be both speculative and complex, therefore this has not been undertaken.

The report is subject to several limitations. These include:

- Uncertainty as to what comprises current clinical practice. Various methods were used to minimise this, for example discussion with group members and other experts and using published peer reviewed sources of data.
- Not costing many of the recommendations as they were not judged individually to require a material change in resource use. However, a number of small changes may aggregate up to represent a material step change in resource allocation.
- Sexual health services are delivered in a wide range of settings and by a range of professionals. Epidemiological, resource use and cost data are most easily available for the specialist setting eg GUM clinic.
- The costs do not capture the downstream resource and consequences of the recommendations and are therefore likely to understate the implications for NHS boards.

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