

One to one interventions to reduce the transmission of sexually transmitted infections (STIs) including HIV and to reduce the rate of under 18 conceptions especially among vulnerable and at risk groups

## **Costing report**

Implementing NICE guidance in  
England

February 2007

This costing report accompanies the public health intervention guidance: 'One to one interventions to reduce the transmission of sexually transmitted infections (STIs) including HIV and to reduce the rate of under 18 conceptions especially among vulnerable and at risk groups' available online at: [www.nice.org.uk/PHI003](http://www.nice.org.uk/PHI003)

**Issue date:** February 2007

### **This guidance is written in the following context**

This report represents the view of the Institute, which was arrived at after careful consideration of the available data and through consulting healthcare professionals. It should be read in conjunction with the NICE guidance. The report and templates are implementation tools and focus on those areas that were considered to have significant impact on resource utilisation.

The cost and activity assessments in the reports are estimates based on a number of assumptions. They provide an indication of the likely impact of the principal recommendations and are not absolute figures. Assumptions used in the report are based on assessment of the national average. Local practice may be different from this, and the template can be used to estimate local impact.

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## **Executive summary**

This costing report looks at the resource impact of implementing the NICE public health intervention guidance on preventing STIs and reducing under 18 conceptions in England.

The costing method adopted is outlined in appendix A; it uses the most accurate data available, was produced in conjunction with key clinicians, and reviewed by clinical and financial experts.

### ***Supporting implementation***

The NICE public health intervention guidance on preventing STIs and reducing under 18 conceptions is supported by the following implementation tools available on our website [www.nice.org.uk/PHI003](http://www.nice.org.uk/PHI003)

At the point of launch of the guidance:

- costing tools
  - a national costing report; this document
  - a local costing template; a simple spreadsheet that can be used to estimate the local cost of implementation.

Approximately 10 weeks after launch of the guidance:

- a slide set; key messages for local discussion
- implementation advice; practical suggestions on how to address potential barriers to implementation
- audit criteria.

A practical guide to implementation, 'Putting NICE guidance into practice: a guide to implementation for organisations', is also available to download from the NICE website. It includes advice on establishing organisational level implementation processes as well as detailed steps for people working to implement different types of guidance on the ground.

## ***Cost Assessment***

Because of the breadth and complexity of the guidance, this report focused on recommendations that were considered to have the greatest resource impact and therefore require the most additional resources to implement or generating savings. However difficulties were experienced when attempting to identify the magnitude of the target population for each recommendation based on the stated risk factors or key behaviours.

We have estimated indicative populations for each of the individual risk groups or for specific behaviours. However because the risk factors or behaviours are not mutually exclusive and members of the target population can exhibit multiple risk factors or behaviours we have been unable to estimate the overlap and therefore the total target population is unknown.

Not knowing the total target population has prevented the calculation of a national cost for each of the recommendations. The wide range of professionals and settings where activity may occur has also made it difficult to assess current activity and to estimate how the future level of activity may change.

## ***Savings***

The literature review and economic analysis conducted in order to develop the guidance suggests that implementing the recommendations should lead to a reduction in the number of infections, re-infections and conceptions. Any such reduction will avoid certain activity costs that would have arisen due to the need to test and treat STIs, to deliver a baby or to terminate a pregnancy. Wherever possible the magnitude of the positive outcome has been quantified in terms of infections or conceptions avoided per 1,000 people receiving the intervention and the unit costs of the relevant avoided activity have been described.

## ***Local Template***

We have created a local template that can be used by primary care trusts (PCTs) or other local organisations to calculate the potential cost impact of

implementing these recommendations. Local population data will be required to populate the model. However, we have added indicative unit costs and assumptions as default values in the model. These unit costs and assumptions are described in the body of the report.

# 1 Introduction

## 1.1 *Supporting implementation*

1.1.1 The NICE public health intervention guidance on preventing sexually transmitted infections (STIs) and reducing under 18 conceptions is supported by the following implementation tools available on our website [www.nice.org.uk/PHI003](http://www.nice.org.uk/PHI003)

1.1.2 At the point of launch of the guidance:

- costing tools
  - a national costing report; this document
  - a local costing template; a simple spreadsheet that can be used to estimate the local cost of implementation

1.1.3 Approximately 10 weeks after launch of the guidance:

- a slide set; key messages for local discussion
- implementation advice; practical suggestions on how to address potential barriers to implementation
- audit criteria.

1.1.4 A practical guide to implementation, 'How to put NICE guidance into practice: a guide to implementation for organisations', is also available to download from the NICE website. It includes advice on establishing organisational level implementation processes as well as detailed steps for people working to implement different types of guidance on the ground.

## 1.2 *What is the aim of this report?*

1.2.1 This report discusses the national cost impact arising from implementation of guidance on preventing STIs and reducing under 18 conceptions in England.

1.2.2 This report aims to help organisations plan for the financial implications of implementing NICE guidance.

- 1.2.3 This report does not reproduce the NICE guidance on preventing STIs and reducing under 18 conceptions and should be read in conjunction with it (see [www.nice.org.uk/PHI003](http://www.nice.org.uk/PHI003)).

### **1.3 Background to preventing STIs and reducing under 18 conceptions**

#### **Preventing STIs**

- 1.3.1 Sexual health in the UK has deteriorated over the last 12 years, with large increases in many STIs. The diagnosis of chlamydia in genito-urinary medicine (GUM) clinics has increased by over 300% (from 32,288 in 1995 to 104,155 in 2004), and gonorrhoea by over 200% (from 10,580 in 1995 to 22,335 in 2004) (HPA 2005). In addition, the incidence of HIV has increased more than threefold, from 2500 cases diagnosed in 1995 to just over 7000 in 2005 (HPA 2006a).
- 1.3.2 Overall, the number of STIs and other conditions diagnosed in GUM clinics in the UK increased by 3% between 2004–2005 (from 751,282 to 790,387) (HPA 2006b).

#### **Reducing under 18 conceptions**

- 1.3.3 England's under 18 and under 16 conception rates have fallen by 11.1% and 15.2% respectively since the start of the 'Teenage pregnancy strategy' in 1998. Rates are now at their lowest level for 20 years (TPU 2006). However, the UK still has the highest rate of teenage pregnancy in Western Europe. In 2004, there were 39,545 under 18 conceptions in England.

## **2 Costing methodology**

### **2.1 Process**

- 2.1.1 We use a structured approach for costing guidance (see appendix A). Little information about public health has been

systematically collected, and this led to problems in building a comprehensive bottom-up model for costing.

- 2.1.2 To overcome this limitation, we had to make assumptions in the costing model. We developed these assumptions and tested them for reasonableness with colleagues in the Centre for Public Health Excellence, other data sources where possible and in discussion with other practitioners in the relevant fields. The public health intervention guidance includes six recommendations. We have considered the cost impact of five of these recommendations.

## **2.2 Scope of the cost-impact analysis**

- 2.2.1 The guidance offers best practice advice on how professionals – and others involved in the delivery of one to one direct sexual health interventions – can reduce the transmission of STIs (including HIV). It also offers advice on reducing the rate of under eighteen conceptions, especially among vulnerable and high risk groups.

- 2.2.2 The guidance will not cover:

- group-based interventions, including sex and relationship education
- interventions aimed at parents and carers and their involvement in sex and relationship education
- interventions to address the wider determinants of poor sexual health
- screening for other STIs or HIV (except for chlamydia screening – and in this case, will not cover an assessment of the efficacy of the screening tests or the treatment provided)
- an assessment of the efficacy of individual contraceptive methods.

Therefore these issues are also outside the scope of the costing work.

- 2.2.3 We experienced difficulties when attempting to identify the magnitude of the target population for each recommendation based on the stated risk factors or key behaviours.
- 2.2.4 This was primarily due to the paucity of appropriate data. This was particularly the case for recommendations relating to populations at risk of sexually transmitted infections and to vulnerable young people aged under 18. We have estimated populations for each of the individual risk groups or for specific behaviours. However because the risk factors or behaviours are not mutually exclusive and members of the target population can exhibit multiple risk factors or behaviours we have been unable to estimate the amount of overlap, and therefore the total target population is unknown.
- 2.2.5 Not knowing the total target population has prevented us from calculating a national cost for each of the recommendations. The wide range of professionals and settings where activity may occur has also made it difficult to assess current activity and to estimate how the future level of activity may change.

### **3 Cost of significant resource-impact recommendations**

#### ***3.1 Risk assessment and one to one discussions for those at high risk***

##### **Background**

3.1.1 The target population of recommendation 1 and 2 is described in the following manner. Key groups at risk of STIs including:

- men who have sex with men
- people who have come from or who have visited areas of high HIV prevalence.

3.1.2 Behaviours that increase the risk of STIs include:

- misuse of alcohol and/or substances
- early onset of sexual activity
- unprotected sex and frequent change of and/or multiple sexual partners.

3.1.3 The professional groups who should take action to implement recommendation 1 are health professionals working in:

- general practice
- GUM
- community health services (including community contraceptive services)
- voluntary and community organisations
- school clinics.

3.1.4 The actions required to implement recommendation 1 are:

- Identify individuals at high risk of STIs using their sexual history. Opportunities for risk assessment may arise during consultations on contraception, pregnancy or abortion, and

when carrying out a cervical smear test, offering an STI test or providing travel immunisation. Risk assessment could also be carried out during routine care or when a new patient registers.

- Have one to one structured discussions with individuals at high risk of STIs (if trained in sexual health), or arrange for these discussions to take place with a trained practitioner.

3.1.5 The professional groups who should take action to implement recommendation 2 are health professionals trained in sexual health who work in:

- general practice
- GUM
- community health services (including community contraceptive services)
- voluntary and community organisations
- school clinics.

3.1.6 The actions required to implement recommendation 2 are:

- Have one to one structured discussions with individuals at high risk of STIs. The discussions should be structured on the basis of behaviour change theories. They should address factors that can help reduce risk-taking and improve self-efficacy and motivation. Ideally, each session should last at least 15–20 minutes. The number of sessions will depend on individual need.
- For details of a range of behaviour change theories see 'Predicting health behaviour' (Conner and Norman 2005).

### **Assumptions made**

3.1.7 There are no age restrictions associated with this recommendation. Consequently we have assumed that this recommendation could

relate to the high risk groups within the adult population and that this adult population spans an age range of 12 to 74 year olds.

- 3.1.8 We have been unable to estimate the potential population who might require a risk assessment and who consequently might go onto receive a one to one structured discussion. The key groups and behaviours are assumed not to be mutually exclusive. Similarly, no data is available on how often this potential population might contact services currently and how activity might change in the future. The following statistics give approximate populations for each of the key risk groups or for people who may exhibit high risk behaviours.
- 3.1.9 The National Survey of Sexual Attitudes and Lifestyles (NATSAL) I and II gives an indication of the magnitude of the population of men who have sex with men in England. 1.4% of NATSAL I respondents aged 16 to 59 (Wellings et al. 1994) and 2.6% of NATSAL II respondents aged 16 to 44 (Erens et al. 2003) said they had a same sex partner in the past 5 years. Applying these proportions to the current English population suggests that there may be between 210,000 and 391,000 men who have sex with men.
- 3.1.10 When trying to estimate the number of English residents who have visited areas of high HIV prevalence, we need to make assumptions about what amounts to a high HIV prevalence. If we assume that any country with a prevalence of HIV among the adult population of over 5% is an area of high prevalence, then the UNAIDS/WHO statistics on the global HIV epidemic indicate that 18 sub-Saharan countries including South Africa are high HIV prevalence areas (UNAIDS/WHO 2006). In 2004, 439,000 UK residents visited South Africa (Office of National Statistics 2005) while 591,000 residents visited other central and southern African countries that include other high prevalence sub-Saharan countries. If we change the definition of a high prevalence area to those countries with an HIV prevalence that is greater than the global average, we need to

include several Caribbean countries, eastern European countries (including Russia) and east asian countries such as Thailand. The number of UK residents visiting these countries in 2004 can be estimated at around 2.37 million.

- 3.1.11 An analysis of the 2003 crime and justice survey by Becker and Rose (2005) suggests that 5% of the population aged 10 to 24 frequently used one of the drugs that are classified under the misuse of drugs act in the preceding year, rising to 24% among vulnerable populations. This means that among the 9.591 million 10 to 24 year olds in England around 478,000 may be frequent illicit drug users. From the National Treatment Agency's national prescribing audit 2004/05 it was reported that around 160,000 drugs users were in contact with structured treatment services (Best and Campbell 2006). Assuming that the annual increase in individuals receiving treatment is 8%, approximately 185,600 individuals will be receiving treatment for substance misuse in 2006/07.
- 3.1.12 An analysis of early heterosexual experience in Britain using the NATSAL data (Wellings et al. 2001) suggests that the proportion of those aged 16–19 years reporting first heterosexual intercourse at younger than 16 years was 30% for men and 26% for women. Applying these proportions to the current populations for 13 to 15 year olds in England suggests that 245,000 girls and 298,000 boys may experience early onset of sexual activity.
- 3.1.13 An analysis of the NATSAL II data (Johnson et al. 2001) when applied to the English population suggested that 14.6% of men and 9% of women aged 16 to 44 had concurrent sexual partners within the past year. When these proportions are applied to the current English population, 2.3 million adults aged 16 to 44 may have had concurrent partners in the preceding year.
- 3.1.14 Given the type of opportunities for risk assessment listed in the recommendation we have assumed that risk assessment could be

conducted by general practitioners (GPs), practice nurses, sexual health advisers or community nurses. We have assumed that a risk assessment will take approximately 10 minutes. Based on the current average salary bands for the professionals listed above, an average unit cost for a 10 minute risk assessment has been calculated and is shown in table 1.

**Table 1 Unit cost of a 10 minute risk assessment**

Professional group	Agenda for change banding	Unit cost, £	Description of unit cost	Cost of 10 minute risk assessment
General practitioners	-	£21.00	per 10 minute consultation	£21.00
Practice nurses	5 to 7 AfC	£24.31	per hour at mid point of 3 bands	£4.05
Sexual health advisers	6	£31.74	per hour at mid point of band	£5.29
Community nurses	6	£31.74	per hour at mid point of band	£5.29
<b>Average</b>				<b>£8.91</b>

3.1.15 We assume that one to one discussion will take approximately 20 minutes and that on average each person will receive only one session. Again the recommendation suggests that a range of locations could be used to provide these one to one discussions and that the trained health professionals described in the recommendation could cover a range of professional groups. We have assumed that a similar group as described in table 1 could conduct the one to one discussions. Using the same information displayed in table 1 we have calculated a unit cost for an average 20 minute discussion of £17.82.

3.1.16 A number of trials suggest that provision of counselling and discussion sessions has been found to reduce STI infections.

Consequently, this could result in avoided costs as the re-infected cases would no longer require treatment

**Table 2 The outcome of trials that examined the effect of counselling or behaviour skills interventions on STIs averted**

Study	Intervention	Type of staff delivering intervention	Time (hrs)	Effect estimate	Incremental STIs averted for 1,000 people receiving the intervention
Kamb (1998)	Enhanced counselling	Practice nurse	3.3	-0.03	31
Kamb (1998)	Brief counselling	Practice nurse	0.7	-0.03	26
Maher (2003)	Intensive counselling	Practice nurse	2	-0.04	40
Boyer (1997)	Behavioural skills counselling	Practice nurse	4	-0.02	20
Kalichman (2005)	Information and behaviour skills (women)	Practice nurse	1.5	-0.07	70
Kalichman (2005)	Information, motivation and behaviour skills (men)	Practice nurse	1.5	-0.04	40
Kalichman (2005)	Information, motivation and behaviour skills (women)	Practice nurse	1.5	-0.07	70
Bolu (2004)	Enhanced counselling	Practice nurse	3.3	-0.03	40
Bolu (2004)	Brief counselling	Practice nurse	0.7	-0.03	26
James (1998)	Tailored skill session	Practice nurse	0.3	-0.05	50

3.1.17 The effect of the interventions ranges from 20 to 70 STIs averted per 1000 people receiving the intervention. The mid point is 45 STIs averted per 1000 people. It should be noted that the time spent in providing the interventions also ranges from 18 to 240 minutes and that the majority of interventions analysed in these trials were

longer in duration than the interventions that are being proposed as part of this cost assessment.

- 3.1.18 The unit cost of an avoided STI includes the cost of LCR test materials, health professional time to conduct the test, the unit cost of either azithromycin or doxycycline and health professional time to administer the treatment. We have calculated this cost as approximately £26 per person.

## **3.2 Partner notification**

### **Background**

- 3.2.1 The target population of recommendation 3 is patients with an STI.

- 3.2.2 The professional groups who should take action to implement recommendation 3 are:

- Health professionals working in general practice, GUM and community health services (including community contraceptive services), voluntary and community organisations and school clinics. (However, they may need to refer the patient to a specialist.)
- Specialists with responsibility for helping to contact, test and treat partners of patients with an STI (partner notification). They may be sexual health advisers, GPs or practice nurses providing enhanced sexual health services, chlamydia screening coordinators or GUM clinicians.

- 3.2.3 The actions required to implement recommendation 3 are as follows:

- Help patients with an STI to get their partners tested and treated (partner notification), when necessary. This support should be tailored to meet the patient's individual needs.

- If necessary, refer patients to a specialist with responsibility for partner notification. (Partner notification may be undertaken by the health professional or by the patient.)
- Provide the patient and their partners with infection-specific information, including advice about possible re-infection. For chlamydia infection, also consider providing a home sampling kit.

### **Assumptions made**

3.2.4 Partner notification for STIs (including HIV) is the process of locating and notifying partners that they have been exposed to an infection. Ramstedt and colleagues (1991) identified seven different levels of partner notification; however the following three methods are regarded as the primary approaches.

- Provider referral – where the provider takes responsibility for confidentially notifying partners of the possibilities of their exposure to an STI.
- Patient referral – where the index patient accepts full responsibility for informing partners of the possibility of exposure to an STI and for referring them to the appropriate services.
- Contract referral (also known as conditional referral) – where the provider and the index patient agree that the index patient will notify the partner(s) within a specified time period. It is further agreed that the provider will complete the notification process for partners if not reached within the agreed period.

3.2.5 The number of people diagnosed with a new STI made within GUM services has been taken from 2005 figures published by the Health Protection Agency for England (2006a). Data from the first year of the chlamydia screening programme indicates that it is detecting around 1500 cases of chlamydia each year (LaMontagne et al. 2004). Figures on new cases diagnosed within general practice are

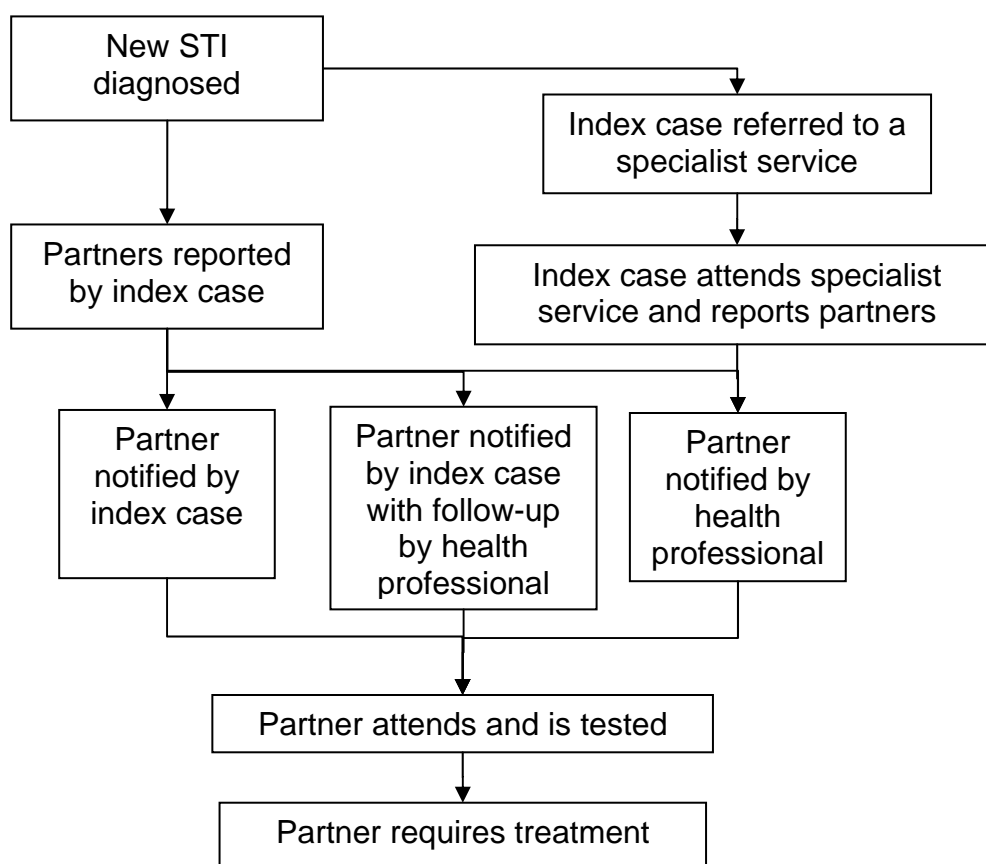
not readily available however we have adapted the analysis performed by Cassell and colleagues (2006) to give an indicative figure of annual new diagnoses for use in this cost analysis. Table 4 indicates the number of new diagnoses made annually for any STI and for chlamydia.

**Table 3 The number of new diagnoses made annually for any STI and for chlamydia, England**

<b>Location of diagnosis</b>	<b>Number of new diagnoses of any STI</b>	<b>Number of new diagnoses of chlamydia</b>
General practice	101,000	10,100
National Chlamydia Screening Programme	1,538	1,538
Genito-urinary medicine	715,935	45,125
<b>Total</b>	<b>818,473</b>	<b>56,763</b>

3.2.6 We have used a four stage partner notification process as described by Adams and colleagues (2004): partner information reported by index case, partner contacted by index case or healthcare professional, partner attends for testing and partner treatment. This is shown in figure 1 below for patient and provider referral systems.

**Figure 1 Outline of partner notification**



3.2.7 Low and colleagues (2005) suggest that a minority of primary care providers send patients with chlamydia infections to GUM clinics and most patients who are referred do not attend. Consequently we have not considered the effect of referral to specialist services in our cost-impact assessment.

3.2.8 Assumptions need to be made for the proportions of patient, contract and provider referral being used in each service as each process will have a slightly different cost.

3.2.9 Stokes and Schober (1999) suggest that patient referral with follow-up in person or by telephone is the preferred strategy for syphilis, gonorrhoea, chlamydia, and HIV in over 80% of clinics, with conditional referral used in almost all other instances. They suggest that provider referral is very rarely used as an initial approach. We

will use these proportions to describe the manner in which services are being delivered.

3.2.10 We have assumed that the number of partners elicited during the partner notification discussion is 1.5 per index case. We also need to make assumptions about the number of partners who are contacted and who return to services to be tested. These assumptions are shown in table 4 below.

**Table 4 Assumptions applied to the recommendation relating to partner notification**

	<b>General practice</b>	<b>National Chlamydia Screening Programme</b>	<b>Genito-urinary medicine</b>
<b>Stage</b>	<b>%</b>	<b>%</b>	<b>%</b>
Index cases reporting	20%	80%	80%
Provider referral	10%	0%	0%
Patient referral	90%	80%	80%
Contract referral	0%	20%	20%
Number of partners per index case	1.7	1.5	1.4
Partners attending for testing	45%	60%	60%
Tested partners where new STI found	70%	70%	70%

3.2.11 The Tyneside scheme, one of the first organised contact tracing systems, persuaded 62% of contacts of syphilis or gonorrhoea to attend a clinic by a health visitor. By 1970, 77% of contacts attended following the efforts of the patients themselves (Wigfield 1972). We will assume that the future level of contact follow-up after provider or patient referral will be somewhere between these two results. Consequently, we assume that in the future, 70% of

partners who are contacted by the patient or by a provider will attend for testing.

3.2.12 Unit costs need to be calculated for each stage of the process. To calculate a unit cost for provider referral we have combined the cost of health professional time discussing partner notification and eliciting partner information and the cost of health professional time taken contacting partners. To calculate a unit cost for patient referral we have combined the cost of health professional time discussing partner notification and providing information and contact slips for the index case to use when contacting their partners.

3.2.13 The unit cost of testing includes cost of LCR test materials and health professional time. The unit cost of treatment will include providing either azithromycin or doxycycline and health professional time. The unit costs for each stage of the partner notification process are shown in table 5 by location.

**Table 5 Unit costs for each stage of the partner notification process by location**

Location of diagnosis	Unit cost of partner notification per person			Unit cost of testing per person	Unit cost of treatment per person
	Provider referral	Patient referral	Contract referral		
General practice	£2.06	£2.12	£2.06	£14.30	£11.81
National Chlamydia	£2.06	£2.12	£2.06	£14.30	£11.81
Genito-urinary medicine	£2.06	£2.12	£2.06	£14.30	£11.81

3.2.14 Partner notification has been found to contribute to reduced re-infections and consequently could result in avoided costs as these re-infected cases would no longer require treatment.

3.2.15 The unit cost of an avoided STI includes the cost of LCR test materials, health professional time to conduct the test, the unit cost of either azithromycin or doxycycline and health professional time to

administer the treatment. We have calculated this cost as approximately £26 per person.

### **3.3 Vulnerable people aged 18 and under**

#### **Background**

3.3.1 The target population of recommendation 5 are vulnerable young people aged under 18. This may include young people:

- from disadvantaged backgrounds
- who are in – or leaving – care
- who have low educational attainment.

3.3.2 For a more detailed definition of vulnerable young people see Department for Education and Skills (2006).

3.3.3 The professional groups who should take action to implement recommendation 5 are:

- GPs, nurses and other clinicians working in healthcare settings such as primary care, community contraceptive services, antenatal and postnatal care, abortion and GUM services, drug/alcohol misuse and youth clinics, and pharmacies.
- GPs, nurses and other clinicians working in non-healthcare settings such as schools and other education and outreach centres.

3.3.4 The actions required to implement recommendation 5 are as follows:

- Where appropriate, provide one to one sexual health advice on:
  - how to prevent and/or get tested for STIs and how to prevent unwanted pregnancies
  - all methods of reversible contraception, including long-acting reversible contraception (LARC) (in line with NICE clinical guideline 30)

- how to get and use emergency contraception
  - other reproductive issues and concerns.
- Provide supporting information on the above in an appropriate format.

### **Assumptions made**

- 3.3.5 The target population of this recommendation is vulnerable young people under 18. We will assume that the lowest age to which these interventions will be applied is 12. The total English male and female populations aged from 12 to 17 are 1.89 million and 1.99 million respectively.
- 3.3.6 'Teenage pregnancy: accelerating the strategy to 2010' (DfES 2006) includes thirteen risk factors that are associated with high teenage pregnancy rates. These are grouped into three main categories of risky behaviour, education-related factors and family/background factors.
- 3.3.7 The proportion of teenage mothers who exhibit these risk factors and the effect of multiple risk factors on the probability of becoming a teenage mother is known (Berrington et al. 2005). However, the number of teenagers who may have one or more of these risk factors in any given population is not known. An analysis of the 2003 crime and justice survey data of drug use among 10 to 24 year olds by Becker and Roe (2005) identified the proportion of the population that falls within five vulnerable groups. These groups are: those who have ever been in care; those who have ever been homeless; truants; those excluded from school and serious or frequent offenders. There are similarities between these groups and the risk factors outlined above. Becker and Roe suggest that about 28% of 10 to 17 years olds were found to be in one or more of the vulnerable groups. Applying this finding to the current English population of 12 to 17 year olds suggests that around 1.08 million may fall into one or more of the vulnerable groups.

3.3.8 The recommendation says that providing one to one sexual health advice could include both discussion and the provision of information. We have assumed that, at the very least, this consultation will be provided as a single 20 minute appointment.

3.3.9 The suggested settings for the consultation are wide ranging and encompassing both health and non-health settings. We have assumed that one to one sexual health advice could be conducted by GPs, practice nurses, sexual health advisers or community nurses (although recommendation 5 suggests that other professionals could also provide this advice). Based on the current average salary bands for these professionals, an average unit cost for a 20 minute advice session has been calculated and is shown in table 6.

**Table 6 Unit cost of a 20 minute one to one advice session**

Professional group	Agenda for change banding	Unit cost, £	Description of unit cost	Cost of 20 minute one to one sexual advice session
General practitioners	-	£21.00	per 10 minute consultation	£42.00
Practice nurses	5 to 7 AfC	£24.31	per hour at mid point of 3	£8.10
Sexual health advisers	6	£31.74	per hour at mid point of band	£10.58
Community nurses	6	£31.74	per hour at mid point of band	£10.58
<b>Average</b>				<b>£17.82</b>

3.3.10 We have assumed that more one to one sexual health advice for vulnerable young people aged 18 and under will lead to a reduction in conceptions and abortions among this population.

**Table 7 Under 18 conceptions for England in 2004**

Year	Under 18 conceptions	Under 18 conception rate per thousand females aged 15-17	<i>Percent leading to legal abortion</i>

2004	39,545	41.5	46.0
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(Source: Teenage Pregnancy Unit 2006)

- 3.3.11 A literature review conducted as part of the guidance development process found one randomised controlled trial (Winter and Breckenmaker 1991). This trial examined whether tailored teenage family planning protocols, including counselling and education affected rates of pregnancy at 12 months post intervention as well as other outcomes. It found that the rate of pregnancy among the intervention arm was 3.1% while the rate within the control arm was 5.5% ( $p < 0.10$ ). The intervention was found to have lasted in total of 55 minutes and was spread across three separate sessions.
- 3.3.12 The health economic modelling conducted as part of the guidance development process examined the effect of counselling on the reduction of number of conceptions. They used the results from the study by Winter and Breckenmaker (1991) to calculate the potential impact of the current rate of under 18 conceptions. They concluded that proportion affect on the conception rate for England could drop from 41.5 to 40.5 per 1000 women.
- 3.3.13 So if we assume that the rate of conception falls by one conception per 1000 people attending a one to one sexual health advice session, the provision of an additional 100,000 sessions would expect to prevent 100 conceptions.
- 3.3.14 From the information provided by the Teenage Pregnancy Unit (2006) it appears that 46% of conceptions among young women aged between 15 and 17 result in a legal abortion. If we assume that a similar rate of abortion would apply to the 100 conceptions that have been avoided, then we have avoided 46 terminations of pregnancy and 54 deliveries.
- 3.3.15 The unit costs of delivering a baby normally, by assisted delivery and by caesarean section can be found in national tariff unit costs for the health resource groups N06 to N11. The unit cost of a

medical or surgical termination of pregnancy has been taken from national tariff unit costs 2006/07 in the health resource groups M10 to M11. Minimum and maximum costs for both delivery and termination of pregnancy were taken from NHS reference costs 2006. Weighted unit costs were calculated using elective and non-elective activity data from hospital episode statistics 2004 for delivery and termination of pregnancy. These weighted unit costs are shown in table 8.

**Table 8 Weighted unit costs for the delivery of babies and for the termination of pregnancy**

Procedure		Weighted unit costs		
		Average, £	Minimum, £	Maximum, £
Delivery (HRGs N06–N11)	Elective procedure	1,087	854	1,774
	Non-elective procedure	1,337	1,105	1,753
	<b>All procedures</b>	<b>1,088</b>	<b>855</b>	<b>1,774</b>
Termination of pregnancy (HRGs M10–M11)	Elective procedure	524	534	899
	Non-elective procedure	778	580	1,056
	<b>All procedures</b>	<b>542</b>	<b>537</b>	<b>909</b>

3.3.16 We will use a unit cost of £1088 per delivery avoided and £542 per termination of pregnancy.

### ***3.4 Vulnerable people aged 18 and under, who are pregnant or already mothers***

#### **Background**

3.4.1 The target population of recommendation 6 are vulnerable young women aged under 18 who are pregnant or who are already mothers. This may include young women:

- from disadvantaged backgrounds
- who are in – or leaving – care
- who have low educational attainment.

3.4.2 For a more detailed definition of vulnerable young people see Department for Education and Skills (2006).

3.4.3 The professional groups who should take action to implement recommendation 6 are midwives and health visitors who provide antenatal, postnatal and child development services.

3.4.4 The actions required to implement recommendation 6 are:

- Regularly visit vulnerable women, aged under 18, who are pregnant or who are already mothers.
- Discuss with them and their partner (where appropriate) how to prevent or get tested for STIs and how to prevent unwanted pregnancies. The discussion should cover:
  - all methods of reversible contraception, including LARC (in line with NICE clinical guideline 30), and how to get and use emergency contraception
  - health promotion advice, in line with NICE guidance on postnatal care (NICE clinical guideline 37)
  - opportunities for returning to education, training and employment in the future.
- Provide supporting information in an appropriate format.
- Where appropriate, refer the young women to the relevant agencies, including services concerned with reintegration into education and work.

### **Assumptions made**

3.4.5 The number of annual conceptions to mothers aged under 18 in England and Wales is available up to 2004 (ONS 2006). This data

includes information about pregnancies that are terminated by legal abortion. In 2004 there were 39,545 conceptions to women aged under 18. Of these conceptions 46% led to terminations by abortion.

3.4.6 The Teenage Pregnancy Unit has estimated the number of teenage mothers by local authority. This analysis suggests that there are 9205 women who are already mothers aged under 18. There is significant variation in the number of teenage mothers within local authority areas across England – from a minimum of 3 to a maximum of 268 and with a lower and upper quartile of 62 and 80 respectively.

3.4.7 The recommendation outlines three criteria that may suggest that a young woman aged under 18 who is pregnant or already a mother is vulnerable; disadvantaged backgrounds; those who are in – or leaving – care and those who have low educational attainment. The policy document ‘Teenage pregnancy: accelerating the strategy to 2010’ (DfES 2006) highlights a number of other factors.

3.4.8 Again we experienced problems when trying to estimate the magnitude of the population of current mothers or young women who are pregnant and who may be vulnerable according to the definitions given in the recommendation. The criteria listed in the recommendation and highlighted in ‘Teenage pregnancy: accelerating the strategy to 2010’ (DfES 2006) are assumed not to be mutually exclusive. We have been unable to assess how often this potential population might contact services currently and how activity might change in the future. The following statistics give approximate populations for several of the key criteria that define vulnerability.

3.4.9 It has been shown that nearly 40% of teenage mothers leave school with no qualifications (DfES 2006). A significant proportion of teenage mothers have more than one child when still a teenager.

Around 20% of births conceived under 18 are second or subsequent births. The prevalence of teenage motherhood among looked after girls under 18 is around three times higher than the prevalence among all girls under 18 in England.

- 3.4.10 The recommendation suggests that meetings should be regular and include discussion and provide information. O'Sullivan and Jacobsen (1992) found that eight clinic-based sessions between the second week and eighteenth month of the postnatal period had a positive effect on repeat pregnancies among economically disadvantaged black teenage mothers. The sessions included counselling about family planning methods, infant care, role modelling for parenting behaviours and a discussion about plans for returning to school. Quinlivan and colleagues (2003) found that five home visits within the 6 month postnatal period had a positive affect on reliable contraceptive use. The visits provided education on parenting, breastfeeding, immunisation and contraception, plus advice and training. We therefore consider regular visits to mean between five and eight sessions within the 18 month postnatal period. For the purposes of this national cost assessment we will assume that six visits should be conducted per person per year.
- 3.4.11 Visits might be conducted by midwives, health visitors and nurses who provide antenatal, postnatal and child development services. Unit costs for visits conducted by these professions were taken from NHS reference costs 2006 and from the unit costs given in the 'Unit costs of health and social care' (PSSRU 2006). These unit costs are shown in table 9.

**Table 9 Unit costs for visits conducted by midwives, health visitors and community nurses**

Type of visit	Average unit cost per visit, £	Source	Minimum, £	Maximum, £
Community nurse (includes district nursing sister, district nurse)	20.00	PSSRU 2006 (section 9.1)	18.00	22.00
Health visitors	31.00	PSSRU 2006 (section 9.3)	27.90	34.10
Community midwifery: antenatal visits	40.23	NHS reference costs 2006 (CMANV)	33.09	56.08
Community midwifery: postnatal visits	47.02	NHS reference costs 2006 (CMPNV)	36.58	59.73
<b>Average unit cost</b>	<b>34.56</b>		<b>28.89</b>	<b>42.98</b>

3.4.12 We will use a unit cost of £34.56 per visit. The minimum and maximum weighted unit costs shown in the table will be used in the sensitivity analysis below. Given that we are assuming six visits per year, this means that the annual cost per person is £206.36.

## 4 Conclusion

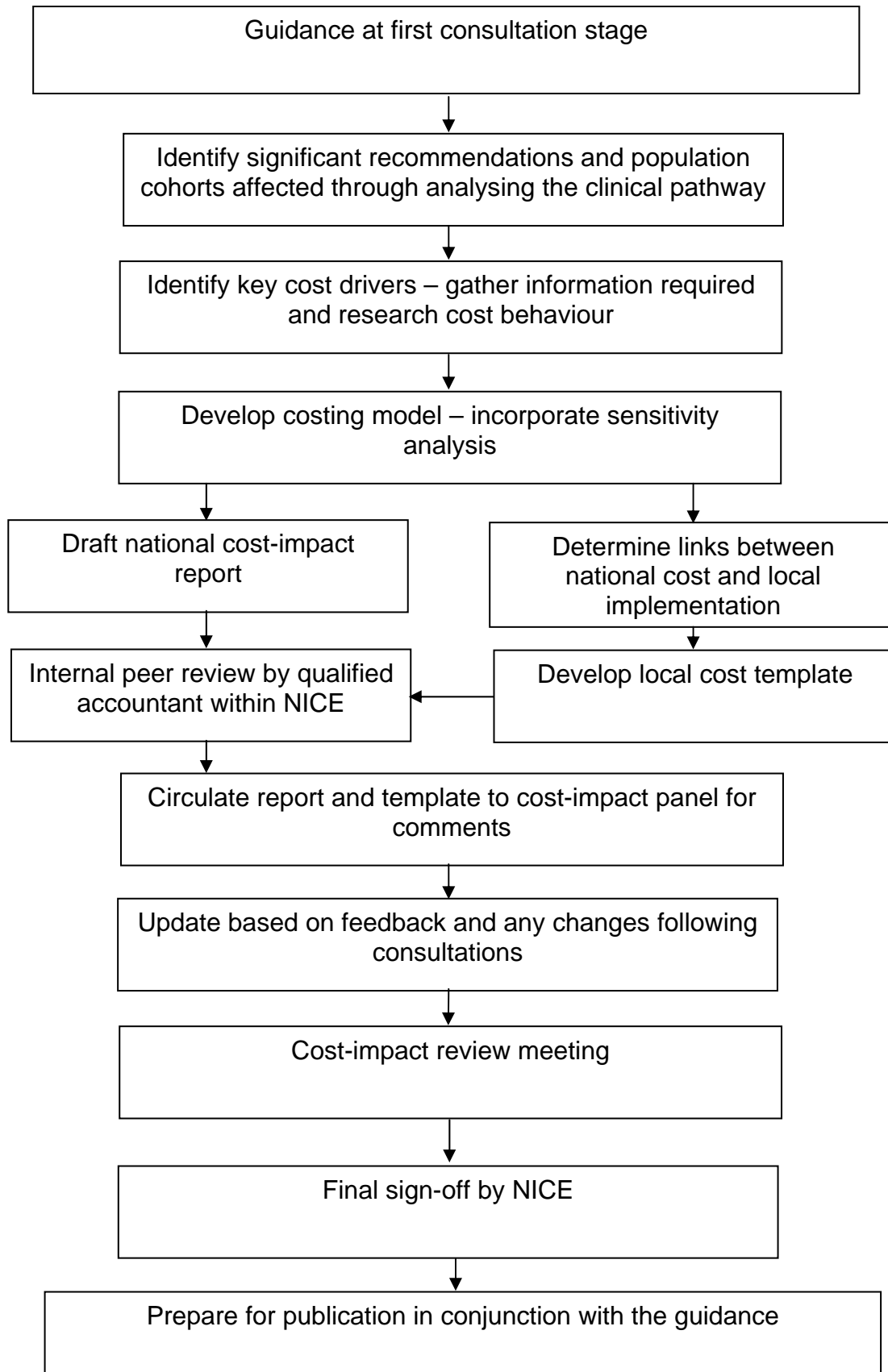
### 4.1 Savings

4.1.1 The literature review and economic analysis conducted in order to develop the guidance suggests that implementing the recommendations should lead to a reduction in the number of infections, re-infections and conceptions. Any such reduction will avoid certain activity costs that would have arisen due to the need to test and treat STIs, to delivery a baby or to terminate a pregnancy. Wherever possible the magnitude of the positive outcome has been quantified in terms of infections or conceptions avoided per 1,000 people receiving the intervention and the unit costs of the relevant avoided activity have been described.

## **4.2 Local costing template**

- 4.2.1 The local costing template produced to support this guideline enables organisations such as PCTs to estimate the impact locally and replace variables with ones that depict the current local position. Local population data will be required to populate the model. However wherever possible we have added unit costs and assumptions as default values in the model. These unit costs and assumptions are described in the body of the report. Use this template to calculate the cost of implementing this guidance in your area.

## Appendix A: Approach to costing guidance



## Appendix B: References

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