

Issue date: December 2005

National cost-impact report

Implementing the NICE clinical guideline on
long-acting reversible contraception

NICE clinical guideline no. 30

Issue date: December 2005



Clinical Guideline CG030**National cost impact report to accompany 'Long-acting reversible contraception'****Issue date: December 2005**

This report is an assessment of the costs of implementing the recommendations in 'Long acting reversible contraception'.

The Institute's full guidance is available from the NICE website (www.nice.org.uk/CG030NICEguideline).

An abridged version of the guidance (a 'quick reference guide') is also available from the NICE website (www.nice.org.uk/CG030quickrefguide). Printed copies of the quick reference guide can be obtained from the NHS Response Line: telephone 0870 1555 455 and quote reference number N0915.

Information for the public is available from the NICE website (www.nice.org.uk/CG030publicinfo) or from the NHS Response Line (quote reference number N0916).

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 guideline. 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

Background

This report looks at the cost impact of implementing the NICE guideline 'Long-acting reversible contraception' (LARC) in England. The costing method adopted is outlined in appendix A; it uses the most accurate data available, and expert opinion.

Costing methodology

The project followed a structured approach involving:

- background research into the guideline content, current clinical practice, published information and data
- the development of models to identify the clinical and financial impact of the guideline
- the testing of assumptions, models and conclusions
- the production of a final report encompassing research, results and conclusions
- the production of a template that can be used to assess impact locally.

We consider the assessment presented to be reasonable. It was produced in conjunction with key clinicians and reviewed by people with clinical and financial expertise.

The evaluation focuses on areas that are considered to result in the most significant changes to resource utilisation. We identified these areas in conjunction with the Guideline Development Group. They are:

- potential change in contraception method chosen and impact on number of unplanned pregnancies
- training of health professionals to fit LARC methods.

Total cost impact

The guideline development group found that among the four LARC methods, the injectable is less cost effective than the IUD, IUS and implant, with the latter (IUD, IUS and implant) becoming more cost effective with longer

duration of use. This means that the relatively high initiation costs should not be a barrier to their use, as LARC result in greatest cost-savings compared to other reversible methods. This is borne out by the cost impact model that has been developed, which estimates that the annual revenue changes in costs arising from fully implementing the guideline are:

Table 1 Annual changes in costs from fully implementing the guideline for England

	£ millions
Additional cost of switching from oral contraception to LARC	12.7
Saving from unplanned pregnancies avoided	-115.0
Net saving from increased use of LARC	-102.3

In addition to the estimated annual revenue cost there will be an initial non-recurrent cost to provide sufficient suitably trained staff to fit LARC methods. This is estimated to be £0.9 million. There will be ongoing costs for staff to maintain skills in these areas, but compared with other recommendations this was not considered to be significant.

The net saving assumes that unplanned pregnancies avoided as a result of more effective LARC represent a realisable saving. In practice some women use LARC to delay pregnancy and this is therefore only delaying expenditure on obstetric services. Timing of family planning is reflected in the model, which looks at contraceptive use by age and shows declining use as women get older.

A further assumption is that the total number using LARC methods or the contraceptive pill will remain static at 34% of 15–49 year olds, with a swing from oral contraception to LARC of 8%. An economic model developed in the US showed an even greater cost saving when women using other less reliable methods, or no methods at all, also chose LARC. If improvements in service access enabled unmet demand to be addressed and further increased the

numbers choosing LARC, then savings could be even greater than those estimated in this report.

Implementation

The NICE clinical guideline on LARC is supported by the following implementation tools:

- 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.
- A slide set outlining key messages for local discussion.

To accompany this report, a template has been produced that enables organisations such as primary care trusts (PCTs) to estimate the impact locally and replace variables with ones that depict the current local position. A sample calculation using this template showed that a PCT with a population of about 40,000 women aged 15–49 could expect to save more than £300,000.

The costing template is designed to assist those assessing the resource impact of the guideline at a local level. NICE clinical guidelines are developmental standards within the Department of Health's document 'Standards for better health' and full implementation of the guideline may take place over a number of years. The cost-impact data presented here may help inform local action plans demonstrating how implementation of the guideline will be achieved.

1 Background

1.1 Context

1.1.1 Supporting implementation has been identified as a major area of work for NICE. As part of our strategy to support implementation, we are committed to providing tools and resources that enable health service managers to incorporate NICE guidelines into their planning and resource frameworks. An important part of this is providing information about the cost implications of implementing the guidelines.

1.1.2 We have carried out a project to estimate the costs of implementing the NICE guideline 'Long-acting reversible contraception' in England. The project has two main outputs:

- this report, which gives estimates of the national costs involved
- a local cost template that health planners can use to determine the cost of implementing the guideline, by altering the assumptions used to reflect local circumstances. Appendix B provides more details of factors to consider when assessing impact locally.

1.1.3 This report does not reproduce the guideline on LARC and should be read in conjunction with it (see www.nice.org.uk/CG030).

1.1.4 The accompanying costing template is designed to assist those assessing the resource impact of the guideline at a local level. NICE clinical guidelines are developmental standards in the Department of Health's document 'Standards for better health' and therefore full implementation of the guideline may take place over a number of years. The cost-impact data presented here may help inform local action plans demonstrating how implementation of the guideline will be achieved.

1.2 Characteristics of contraception use

1.2.1 Long-acting reversible contraception is defined in the guideline as methods that require administering less than once per month or cycle. The methods of LARC considered by the guideline were the copper

intrauterine device (IUD), intrauterine system (IUS), injectables and implants.

1.2.2 The uptake of LARC is low in Great Britain, at around 8% of women aged 16–49 in 2003–04, compared with 27% for the oral contraceptive pill (Office for National Statistics 2004). Table 2 lists the current use for methods we considered as part of the costing work.

Table 2 Current contraception use for methods under consideration Based on 2003 survey

	%	Relevant population 000s
Women aged 15-49		11,966
Oral contraceptive pill	26.7%	3,190
<i>Long acting methods:</i>		
Intrauterine device	3.6%	428
Intrauterine system	0.7%	89
Implant	0.5%	64
Injectable	2.7%	323
Total using methods considered	34.2%	4,093

1.2.3 Women in this age group not using the methods listed in the table may be actively trying to conceive (2%), be pregnant (2%), not be in a heterosexual relationship (14%), be infertile after surgical sterilisation or for other reasons (26%) or be using other methods (18%). These other methods include withdrawal, safe period, emergency contraception, cap/diaphragm and condoms. The World Health Organization recommends the correct and consistent use of condoms, either alone or with another contraceptive method, for women at risk of STI.

1.2.4 It is estimated that about 30% of pregnancies are unplanned. Expert clinical opinion is that LARC methods may have a wider role in contraception and their increased uptake could help to reduce unintended pregnancy. The current limited use of LARC suggests that healthcare professionals need better guidance and training to help

women make an informed choice. Healthcare providers and commissioners also need a clear understanding of the relative cost effectiveness of LARC compared with other methods of contraception.

1.3 Models of care

1.3.1 There are two main providers of contraceptive services in England – family planning clinics and general practice. A survey found that during the previous 5 years 48% of women had used a GP or practice nurse and 18% of women had used a family planning clinic for family planning services (Office for National Statistics 2004, table 16). The total of these figures is greater than the 57% who had used **at least** one service indicating that some women had accessed more than one service, possibly when referred on to other services for devices to be fitted.

1.3.2 Although staff in general practice routinely prescribe oral contraceptives, not all are qualified to or choose to fit intrauterine devices, the IUS or implants. In these circumstances the guideline recommends that mechanisms are in place to refer women to other practices or services that can provide LARC.

2 Costing methodology

2.1 Process

2.1.1 We use a structured approach for costing guidelines (see appendix A).

2.1.2 Information has been collected about current contraceptive use and unplanned pregnancies, and this has been used in the model. The potential change in methods used that might arise from women being better informed and from improved access to LARC is not known.

2.1.3 To overcome this limitation, we had to make assumptions in the costing model regarding potential future prescribing; these are based on research undertaken for fpa (formerly the Family Planning Association) (Armstrong and Donaldson 2005). We tested our assumptions for

reasonableness with members of the Guideline Development Group (GDG) and key clinical practitioners in the NHS.

2.2 Scope of the cost-impact analysis

2.2.1 The guideline offers best practice advice on effective and appropriate use of LARC. It does not cover methods of contraception that are intended to result in permanent sterilisation, or postcoital (emergency) contraception. Therefore, these methods are also outside the scope of this assessment of the implementation costs.

2.2.2 We initially considered all the recommendations in the guideline and worked with the GDG and other practitioners to identify the recommendations that would have the most significant impact on resources (see table 3). Costing work has focused on these recommendations.

Table 3 Recommendations that have significant impact on resources

Key areas	Recommendation number	Key priority?
Women requiring contraception should be given information about and offered a choice of all methods, including long-acting reversible contraception (LARC) methods	1.1.1.1	✓
Women should be provided with the method of contraception that is most acceptable to them, provided it is not contraindicated	1.1.1.2	
Contraceptive service providers who do not provide LARC within their own practice or service should have an agreed mechanism in place for referring women for LARC	1.1.6.2	✓
Healthcare professionals providing intrauterine or subdermal contraceptives should receive training to develop and maintain the relevant skills to provide these methods	1.1.6.3	✓

2.2.3 Six of the recommendations in the guideline have been identified as key priorities for implementation, and three of these are also among the four recommendations considered to have significant resource impact. The other key priorities for implementation, referring to awareness of contraceptive service providers about LARC and the provision of

information to women, were not considered to have significant resource impact.

2.2.4 We have limited the consideration of costs to direct costs to the NHS that will arise from implementation, from the perspective of those commissioning services. We have not included costs to the individual, the private sector or the not-for-profit sector. Predicted cost savings arising from a reduction in unplanned pregnancies have been offset against the cost of implementing the changes required.

2.3 General assumptions made

2.3.1 The costing model is underpinned by the following general assumptions. Details of specific assumptions made about each recommendation are given in section 3.

2.3.2 The model is based on the current and predicted use of oral contraception and four different LARC methods, and considers the effectiveness of each method and consequent impact on the number of unplanned pregnancies. It is assumed that an unplanned pregnancy leads to one of four outcomes – birth, abortion, miscarriage or ectopic pregnancy.

2.3.3 It is assumed that, if given better information and improved access to all methods, more women will chose a LARC method over the oral contraceptive pill. Because LARC methods are more effective, this will reduce the numbers of unplanned pregnancies leading to cost savings.

2.3.4 Predicted use is based on research for fpa (Armstrong and Donaldson, 2005). The research involved consensus methods to arrive at an ideal profile of contraception provision. This work has been adapted using the assumption that the total number of women who use the oral contraceptive pill and LARC methods will remain the same, but relative proportions choosing each method will vary.

2.3.5 If the number of women seeking contraceptive services does not change, we conclude that the number of staff advising them on choice

of methods will remain the same. However, the number of staff trained to fit IUDs, the IUS and implants will need to increase if more women choose these methods. The cost of this additional training is estimated in section 3.2.

2.4 Basis of unit costs

- 2.4.1 The majority of contraceptive services are provided in general practice or family planning clinics funded directly by PCTs. We used unit costs consistent with the health economic work undertaken for the guideline development group when costing these services. In the main these refer to GP costs to provide the service. There is some evidence that costs will be lower where services are provided by family planning clinics because of economies of scale and different methods of remuneration. Reference costs do exist for family planning attendances ranging between £5 and £44. This range is the average costs across all consultations and do not reflect the more detailed costs produced as part of the health economics.
- 2.4.2 Contraceptive failures – unplanned pregnancies – result in activity commissioned by PCTs from secondary care providers that will be subject to the Payment by Results tariff. Where there is a national tariff or indicative tariff for an activity this has been used as the unit cost; this has then been inflated by the national average market forces factor. In other cases the cost is based on reference costs for 2003/04 inflated by 14.5% (the overall uplift to the tariff for 2005/06 [Department of Health 2005]).
- 2.4.3 Using these costs ensures that the costs in the report are the cost to the primary care trust (PCT) of commissioning predicted changes in activity at the 2005/2006 tariff price, but may not represent the actual cost to individual providers of delivering the activity.

3 Cost of significant resource impact recommendations

3.1 *Switching from oral contraception to LARC methods*

Background

- 3.1.1 Recommendations 1.1.1.1, 1.1.1.2 and 1.1.6.2 (as detailed in table 3) lead to the assumption that, given a fully informed choice and access to all methods, there may be a shift in the types of contraception chosen and provided.
- 3.1.2 Cost effectiveness analysis undertaken as part of developing the guideline indicated that among the four LARC methods, the injectable is less cost effective than the IUD, IUS and the implant, with the latter (IUD, IUS and implant) becoming more cost effective with longer duration of use. This means the relatively high initiation costs should not be a barrier to their use, as LARC results in greatest cost-savings compared to other reversible methods.

Assumptions made

- 3.1.3 Current use of contraception has been taken from a study of contraceptive provision in 2003 (Office for National Statistics 2004). This study did not separately identify injections and implants so this element has been split based on prescription data. The current percentage and numbers of women in England aged 15–49 using either the oral contraceptive pill or LARC methods are presented in table 2.
- 3.1.4 Predicted use is based on research commissioned by fpa (Armstrong and Donaldson, 2005), which used consensus methods to arrive at an ideal profile of contraception provision. This research looked at relative proportions across all methods of contraception, so we adapted it to use the relative proportion for the five methods that we are concerned with and assumed the overall number of users remains the same. This

leads to the prediction of the following changes in contraceptive provision (table 4).

Table 4 Predicted contraception use and change from current use

	Predicted Use		Change	
	%	Relevant population 000s	%	Relevant population 000s
Women aged 15-49		11,966		0
Oral contraceptive pill	19.0%	2,272	-7.7%	-918
<i>Long-acting methods:</i>				
Intrauterine device	3.0%	363	-0.5%	-6
Intrauterine system	4.4%	529	3.7%	440
Implant	4.1%	489	3.6%	425
Injectable	3.7%	440	1.0%	117
Total using methods considered	34.2%	4,093	0.0%	0

3.1.5 This report presents totals for women aged 15–49 for England using the five methods under consideration. The accompanying cost template calculates current and predicted use for women in 5-year age bands, reflecting the varying proportion of women that use contraception at different ages as shown in table 5. The age profile served by PCTs varies significantly, so age had to be taken into account when considering local impact.

Table 5 Contraception users by age for methods considered

Age range	Current %	Current users 000s
15-19	45.1%	700
20-24	56.0%	863
25-29	49.0%	757
30-34	41.0%	767
35-39	24.0%	477
40-44	19.0%	351
45-49	11.0%	179
Total using methods considered	34.2%	4,093

3.1.6 The annual cost of each method of family planning is based on two main considerations – method cost, and average duration of use. The

costs of devices and drugs were taken from the health economic model and have been checked against the latest version of the *British national formulary (BNF 50)* published September 2005). Average duration is based on 100 women starting the method and the numbers discontinuing it each year (taken from table 8.3 of full guideline) being removed to arrive at a weighted average duration.

3.1.7 The total cost including initiation of method, ongoing costs and removal (if applicable) have been totalled and divided by the average duration to get an average cost per year. We recognise that commissioners are concerned about the high initial cost of devices, so as part of the sensitivity analysis the model has been run using initial cost only, and for completeness sake also using subsequent-year costs only (see section 4.2). Details of the calculations are included in appendix C and are summarised below:

Table 6 Average annual cost and duration for each method

	First year unit cost to NHS £	Subsequent year cost £	Removal cost £	Full cost £	Average duration (years)	Average annual unit cost to NHS £
Oral contraceptive pill	106	61	0	202	2.57	79
<i>Long-acting methods:</i>						
Intrauterine device	133	0	28	161	3.36	48
Intrauterine system	207	0	26	233	3.32	70
Implant	175	0	55	230	2.24	103
Injectable	144	99	0	298	2.56	117

3.1.8 The effectiveness of each method, as measured by the annual failure rate, is taken from table 8.3 of the full guideline. The failure rate for oral contraception includes both method failure and failure due to user error. Consequences of failure are also consistent with the values used in the health economic model and vary because the relative risk of ectopic pregnancy following failure of the IUD and IUS is higher than

with other methods, although the risk of failure is lower than the pill so the absolute risk remains low.

3.1.9 The cost of failure used is a weighted average of the costs for each outcome based on the frequency of the outcome. This is calculated in a manner consistent with the health economic model but updating the costs to reflect potential purchasing cost in 2005/06 using the national tariff where applicable, or reference costs 2004 uplifted to a 2005/06 baseline; the detailed calculations are shown in Appendix D. The assumptions used in the model are summarised in table 7 and the changes in numbers affected are shown in table 8.

Table 7 Frequency and consequences of failure

Method	Annual % failure rate	% of failures resulting in:				Weighted cost of failure £
		Birth	Abortion	Miscarriage	Ectopic pregnancy	
Combined oral contraceptive	8.000	45.87	40.13	12.85	1.15	1,575.14
IUD (intrauterine device)	0.200	43.62	38.16	12.22	6.00	1,574.84
IUS (intrauterine system)	0.100	43.62	38.16	12.22	6.00	1,574.84
Implant	0.005	45.87	40.13	12.85	1.15	1,575.14
Injectable contraceptive	0.100	45.87	40.13	12.85	1.15	1,575.14
Cost of failure £		2,811	552	360	1,569	

Table 8 Estimated current and predicted consequences of failure

	Birth	Abortion	Miscarriage	Ectopic pregnancy	Total
Current	117,599	102,900	32,948	2,995	256,442
Predicted	84,117	73,602	23,567	2,171	183,457
Change	-33,482	- 29,298	-9,381	-824	- 72,985

3.1.10 It is debatable whether failures resulting in a birth produce a true cost saving, or if they bring forward expenditure because contraception is used to delay starting a family. Using differing proportions of contraception at different ages in the model helps to take this into account. The full effect of this is counted as a saving because the

immediate impact is a reduction in the number of unplanned pregnancies. The effect of not all live births being true costs avoided is considered as part of the sensitivity analysis.

Cost summary

3.1.11 Taking into account all the above assumptions we have estimated the net impact of the change in contraception methods to be £102.2 million as summarised below.

Table 9 Net cost impact of change in contraception methods considered

	Current cost £ millions	Predicted cost £ millions	Change in cost £ millions
Cost of contraceptive methods	323.1	335.8	12.7
Cost of unplanned pregnancies	403.9	289.0	-114.9
Net cost / saving (-)	727.0	624.8	-102.3

Other considerations

3.1.12 Table 4 demonstrates 7.7% of women may change from oral contraception to LARC methods; particularly intrauterine systems and implants. A shortage of staff trained to fit these methods means that it will take time and planning to meet the recommendation that contraceptive service providers who do not provide LARC themselves should have an agreed mechanism in place for referring women who wish to use LARC methods. (Training is considered in section 3.2.)

3.1.13 The assumption is that only women currently using oral contraception or LARC methods are affected, given better information and access to services it may be that women currently using other methods such as the cap/diaphragm or condom may wish to choose a LARC method. Modelling work undertaken in the USA (as yet unpublished) indicates that this could lead to avoiding more unplanned pregnancies and deliver greater savings.

3.2 Training professionals to fit LARC methods

Background

3.2.1 Recommendation 1.1.6.3 states that healthcare professionals providing intrauterine or subdermal contraceptives should receive training to develop and maintain the relevant skills to provide these methods. The predicted change in numbers choosing different methods is summarised in table 4 . These values have been used as the starting point when assessing the numbers of staff that would require training.

3.2.2 Fitting of contraceptive devices occurs in two settings – the local GP surgery (if it offers such a service) or within a dedicated family planning clinic. Experts put forward the argument that increased use of dedicated family planning clinics would be the most advantageous way to achieve such an expansion in trained staff fitting devices, because more women would benefit from the training received. The cost of training additional staff has been modelled on this basis. This does not preclude individual practitioners with an interest in LARC being trained and offering such services.

Assumptions made

3.2.3 The health economic model estimated the time required to fit and remove IUD/IUS and implants. Using the same assumed average duration of device, as calculated for average annual cost of devices, the average annual time has been calculated as detailed below.

Table 10 Time required for fitting and removing devices (minutes)

Time	First year	Subsequent years	Removal	Total Time	Weighted average duration (years)	Average annual time
Intrauterine system	47	0	10	57	3.32	17.17
Implant	36	0	22	58	2.24	25.89

3.2.4 It is assumed that one whole time equivalent (WTE) member of staff will work an average of 1200 productive hours per annum, and based

on the change in the number of devices required this indicates that 90 WTE (intrauterine devices) and 153 WTE (implants) staff will be needed to fit additional devices. It should be noted that these are not necessarily additional staff, some could be redeployed from other areas of contraceptive services.

- 3.2.5 A recent census carried out by the Faculty of Family Planning and Reproductive Health, part of the Royal College of Obstetricians and Gynaecologists, noted the number of medical and nursing staff working in family planning. The workforce comprises a large number of part-time staff, with an average of four people making up one WTE. Furthermore it indicates that 48.7% are medical staff and 51.3% are nursing staff. These proportions are used in the model to determine the additional number of medical and nursing staff requiring training.
- 3.2.6 There are two elements to the cost of training staff to fit intrauterine devices and implants – theoretical knowledge and supervised practical experience. The cost of theoretical training courses varies: some providers run courses free of charge, but the typical cost of theoretical training is £150 for each method.
- 3.2.7 The cost of gaining practical experience is based on the time of the person being trained (in order to provide for backfill) and, in recognition that patient throughput is reduced when training, 50% of the time of the supervising doctor is included. It is estimated that for each method a doctor will spend four sessions, and a nurse six sessions, with a supervising doctor in order to get sufficient experience.
- 3.2.8 It is assumed that nurses being trained will be senior nurses on Band 7 under Agenda for Change, at a cost of £37,936 per annum (based on midpoint including employer oncosts). Doctors being trained in these methods are assumed to be staff grades at a cost of £48,728 per annum.
- 3.2.9 The cost of the supervising doctor is based on a weighted average of the current family planning workforce including consultant, associate

specialist, senior community medical officers and staff grade doctors.
This is equivalent to £70,145 per annum (including employer oncosts).

Cost summary

3.2.10 The above assumptions lead to the following estimate of the cost of training doctors and nurses to fit the additional intrauterine devices and implants, as summarised in table 11. This is assumed to be a non-recurrent cost, in order to increase capacity.

Table 11 Non-recurrent cost of training additional staff

	Number	Training cost £	Total cost £000
IUD / IUS – Medical staff	175	795	139.1
IUD / IUS – Nursing staff	184	993	182.7
Implants – Medical staff	298	795	236.9
Implants – Nursing staff	314	993	311.8
Total	971		870.5

Other considerations

3.2.11 There will be a requirement for ongoing refresher training and staff turnover but since all professionals are required to maintain their skills and participate in continuing professional development this was not considered to be as significant as the initial training of staff.

3.2.12 The cost model considers only the cost of training the additional staff needed for fitting LARC methods if uptake increases, and assumes that staff who are fitting the methods currently are all suitably qualified and trained. This may not always be the case.

3.2.13 There may be a need for additional doctors to be trained as supervisors; this will limit the numbers of staff that can be trained and is already considered to be an issue in some areas (Horrocks 2005)

3.2.14 The existing mix of doctors and nurses has been used, it may be decided locally to change these proportions, for example to train more nurses in implant methods and doctors in fitting IUD/IUSs, because the

costs of training are pretty similar this should not vary the estimated cost significantly.

3.2.15 There are implications for providing nurse-led services as part of outreach clinics in the community because of the need to only fit intra-uterine devices when there is someone trained in resuscitation methods on the premises. Areas where services are centralised might consider training a higher proportion of nurses.

4 Sensitivity analysis

4.1 Methodology

4.1.1 There are a number of assumptions in the model for which no empirical evidence exists. Because of the limited data, the model developed is based mainly on discussions of typical values with NHS practitioners and is therefore subject to a degree of uncertainty.

4.2 Impact of sensitivity analysis on costs

Varying cost for each method

4.2.1 If the model is run using the initial cost of methods (as shown in table 6) to represent the year one costs the savings achieved are significantly reduced because of the higher cost of initiating LARC methods. In these circumstance the results are as follows.

Table 1 Impact of using initial year costs only

	Current cost £ millions	Predicted cost £ millions	Change in cost £ millions
Cost of contraceptive methods	471.0	547.6	76.6
Cost of unplanned pregnancies	403.9	289.0	-114.9
Net cost/saving (-)	875.0	836.5	-38.5

4.2.2 However, initiation costs are only part of the picture; three of the methods do not require any intervention following insertion until the time comes for removal. The model was run using ongoing costs and gave the following results.

Table 13 Impact of subsequent year costs

	Current cost £ millions	Predicted cost £ millions	Change in cost £ millions
Cost of contraceptive methods	226.5	182.1	-44.4
Cost of unplanned pregnancies	403.9	289.0	-114.9
Net cost/saving (-)	630.5	471.1	-159.4

Failures resulting in births

4.2.3 The model assumes that all unplanned births will be costs avoided, whereas it may be that some are just mistimed and would have occurred at a later time. We explored the impact of this by varying the cost of births, to imitate a percentage of births occurring at a later stage. The model cost per birth is £2811, so if we were to assume that only 50% are actually avoided then the unit cost would be £1406. The results are presented below

Table 14 Impact of varying the number of births assumed to be avoided

% of births avoided	Unit cost per birth £	Net change £ millions
100	2811	-102.3
75	2108	-78.7
50	1406	-55.2
25	703	-31.6
0	0	-8.0

Phasing the shift in uptake from oral contraception to LARC methods

4.2.4 The model assumes that 7.7% of women will shift from oral contraception to LARC. This is not considered to be possible in the short term because of lack of access to fitting services. Therefore, the impact of phasing the shift from oral contraception to LARC over 5 years has been modelled. The results are presented below:

Table 15 Phasing the shift in uptake of LARC methods

	% shift	Net change £ millions
Year 1	1.5	-18.4
Year 2	3.1	-39.3
Year 3	4.6	-60.3
Year 4	6.1	-81.3
Year 5	7.7	-102.3

5 Conclusion

5.1 Identification of key cost areas

5.1.1 In discussions with the members of the Guideline Development Group and other clinical practitioners in the NHS, we identified and quantified the recommendations that will have the most significant impact on resources arising from implementing this guideline. These recommendations are noted in table 3.

5.1.2 The assumptions used to calculate costs are based on expert opinion. We applied reality tests against existing data wherever possible, but this was limited by the availability of detailed data.

5.1.3 The accompanying template enables you to update the assumptions to reflect local practice and costs (www.nice.org.uk/CG030).

5.2 Total cost

5.2.1 Table 16 summarises the revenue costs of implementing the recommendations in the guideline that we considered to have the most significant impact on resources.

Table 16 Annual revenue costs of implementation

	Current cost £ millions	Predicted cost £ millions	Change in cost £ millions
Cost of contraceptive methods	323.1	335.8	12.7
Cost of unplanned pregnancies	403.9	289.0	-114.9
Net cost / saving (-)	727.0	624.8	-102.3

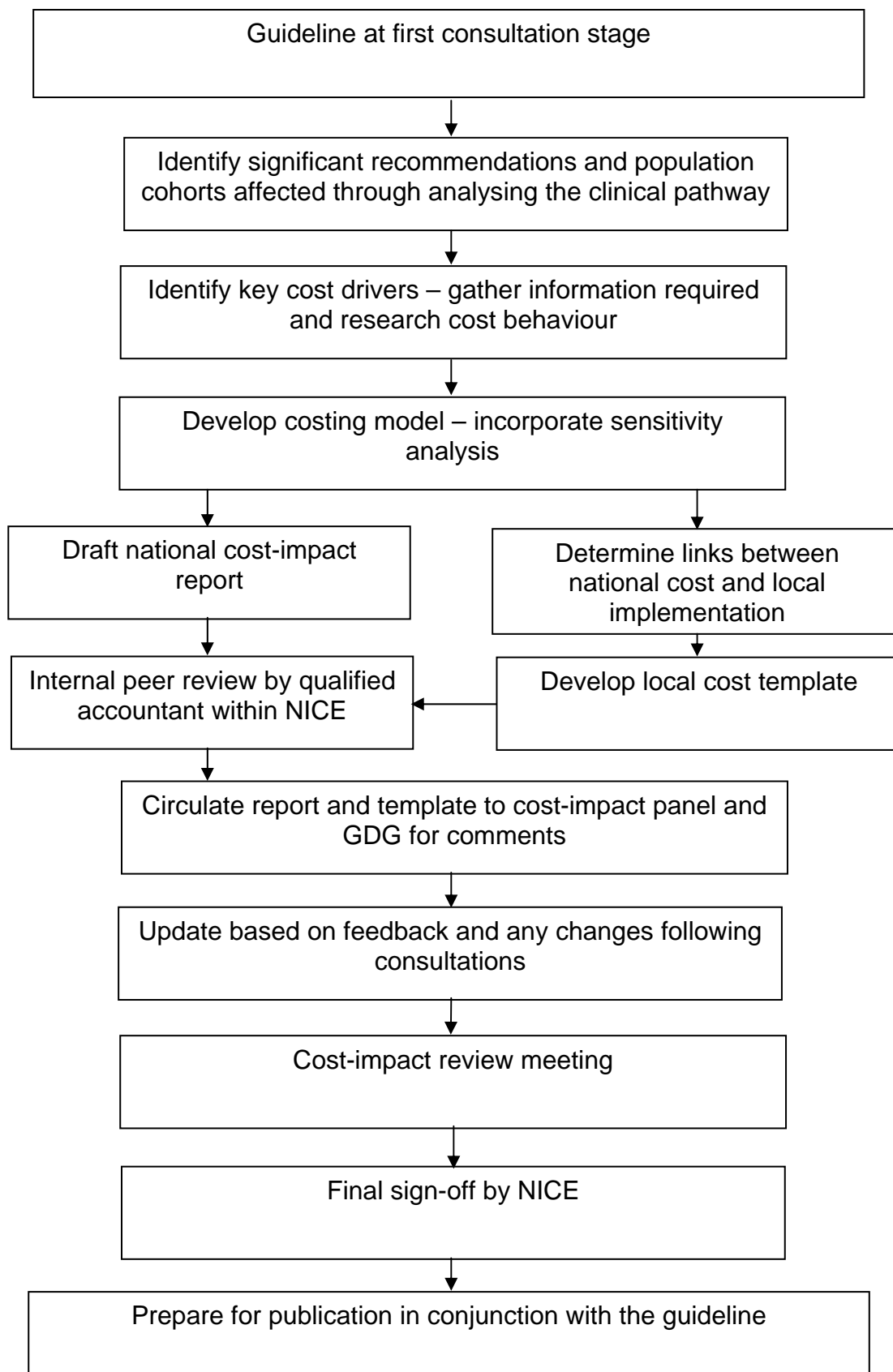
5.2.2 In addition it is estimated that an additional 971 people will need to be trained to fit intrauterine devices and implants, resulting in a non-recurrent cost of £870,500.

5.3 Summary

5.3.1 This report gives a national picture of current practice and the potential changes arising from implementation of the NICE guideline on long-acting reversible contraception. We produced it by developing a model based on expert opinion and on the detailed data that is available and has been validated by other experts.

5.3.2 We consider this assessment to be reasonable, given the limited detailed data regarding diagnosis and treatment paths and the time available. However, the costs presented are estimates and should not be taken as the full cost of implementing the guideline.

Appendix A: Approach to costing guidelines



Appendix B: Accompanying local cost template

To accompany this report, we developed a Microsoft Excel template that allows local costs to be calculated using data on individual PCT populations and local incidence data. The local impact is calculated using the same methodology as in the national cost-impact assessment. The model has been designed to allow multiple PCTs to be combined to reflect local joint commissioning where applicable.

The organisation of services may vary locally, and we designed the template to assess the impact locally to enable variables reflecting local practice to be entered and used in the calculations.

Unit costs used

Where a national tariff price or indicative price exists for an activity then this has been used as the unit cost. The tariff has been increased by the national average market forces factor. The template provides the option to update unit costs to reflect local costs and it is suggested that the local tariff including local market forces factor is used. This mainly affects the cost of consequences of unplanned pregnancies.

In this instance reference costs for family planning attendances were not representative of the different costs of methods so more detailed calculation of unit costs based on the Health Economic model have been used.

Format of template

The template has three main sheets. The screen shot below shows the first sheet, which allows users to select their PCT(s). On the basis of the population, deprivation weighting and prevalence, the template will estimate the number of cases expected in the area.

The screenshot shows a Microsoft Excel spreadsheet with the following structure:

- Row 1:** Health and Social Care Information Centre
- Row 4:** Primary care organisations – GP membership populations
- Row 6:** Based on the patient lists of GPs in practices affiliated to each PCO
- Row 8:** Lists extracted from the ADS2004 and reconciled to OHS mid 2003 estimates for PCOs (minus special populations: armed forces; dependents of foreign armed forces; and convicted prisoners who have been inmates for 6 months or more).
- Row 11:** England totals
- Row 12:** PCO order, SHA, PCO name, Females 15-19, Females 20-24, Females 25-29, Females 30-34, Females 35-39, Females 40-44, Females 45-49, Subtotal, Selected %, Selected Women 15-19, Local pop Women 20-24
- Row 13:** England
- Row 16-45:** Individual PCOs with their respective population data.

PCO order	SHA	PCO name	Females 15-19	Females 20-24	Females 25-29	Females 30-34	Females 35-39	Females 40-44	Females 45-49	Subtotal	Selected %	Selected Women 15-19	Local pop Women 20-24
16	272	Avon, Gloucestershire and Wiltshire	Bath and North East Somerset	5881	6547	4860	5958	6649	6315	5950	42161	0.00%	0
17	273	Avon, Gloucestershire and Wiltshire	Bristol North	6716	7960	7324	8308	8272	7677	6592	52849	0.00%	0
18	274	Avon, Gloucestershire and Wiltshire	Bristol South and West	6805	11921	8700	8067	7130	6265	5576	54465	0.00%	0
19	275	Avon, Gloucestershire and Wiltshire	Cheltenham and Tewkesbury	5123	5142	4856	5550	6206	5792	5080	37748	0.00%	0
20	276	Avon, Gloucestershire and Wiltshire	Cotswold and Vale	5480	3708	3924	5993	7449	7484	6897	40935	0.00%	0
21	277	Avon, Gloucestershire and Wiltshire	Kennet and North Wiltshire	5696	3848	4725	7130	9425	8023	6726	44573	0.00%	0
22	278	Avon, Gloucestershire and Wiltshire	North Somerset	5228	4024	4269	6024	7320	6879	6390	40135	0.00%	0
23	279	Avon, Gloucestershire and Wiltshire	South Gloucestershire	6841	5827	6880	9230	10254	9054	7652	55538	0.00%	0
24	280	Avon, Gloucestershire and Wiltshire	South Wiltshire	3217	2692	3054	4003	4838	4530	4021	26356	0.00%	0
25	281	Avon, Gloucestershire and Wiltshire	Swindon	5550	5132	6378	7534	8089	7423	6029	46135	0.00%	0
26	282	Avon, Gloucestershire and Wiltshire	West Gloucestershire	6970	5738	5538	7789	8924	8272	7376	50607	0.00%	0
27	283	Avon, Gloucestershire and Wiltshire	West Wiltshire	3585	2554	3163	4252	4710	4383	3973	26620	0.00%	0
28	151	Bedfordshire and Hertfordshire	Bedford	4572	4686	4825	5545	5630	5239	4721	35218	0.00%	0
29	152	Bedfordshire and Hertfordshire	Bedfordshire Heartlands	7402	5889	6754	9426	10786	10264	8578	59100	0.00%	0
30	153	Bedfordshire and Hertfordshire	Dacorum	4190	3508	3867	5414	5934	6020	5121	34174	0.00%	0
31	154	Bedfordshire and Hertfordshire	Hertsmere	2645	2577	2652	3155	3681	3493	2932	21135	0.00%	0
32	155	Bedfordshire and Hertfordshire	Luton	6611	7138	6451	6870	6996	6465	5319	45850	0.00%	0
33	156	Bedfordshire and Hertfordshire	North Hertfordshire and Stevenage	5549	4789	5679	7365	8100	7408	6032	44943	0.00%	0
34	157	Bedfordshire and Hertfordshire	Roydon, Buntingford and Bishop's Stortford	2386	1775	2167	3111	3459	3252	2630	16961	0.00%	0
35	158	Bedfordshire and Hertfordshire	South East Hertfordshire	5015	4690	5477	7027	7723	6705	5871	42510	0.00%	0
36	159	Bedfordshire and Hertfordshire	St Albans and Harpenden	3489	2974	3957	5277	5731	5233	4459	31121	0.00%	0
37	160	Bedfordshire and Hertfordshire	Watford and Three Rivers	4916	4555	5793	7050	7265	6565	5588	41733	0.00%	0
38	161	Bedfordshire and Hertfordshire	Welwyn Hatfield	2917	3720	2678	3410	3879	3760	3222	23586	0.00%	0
39	121	Birmingham and the Black Country	Dudley Beacon and Castle	3222	2974	2958	3884	4072	3628	3141	23879	0.00%	0
40	122	Birmingham and the Black Country	Dudley South	5886	5137	5347	7197	7624	7061	6606	44857	0.00%	0
41	123	Birmingham and the Black Country	Eastern Birmingham	8256	7748	7231	8667	8681	7708	6260	54551	0.00%	0
42	124	Birmingham and the Black Country	Heart of Birmingham Teaching	11191	14404	10608	9926	8967	8017	6720	69832	0.00%	0
43	125	Birmingham and the Black Country	North Birmingham	5440	4270	4516	5957	7241	6798	5769	39993	0.00%	0
44	126	Birmingham and the Black Country	Olbury and Smethwick	3295	3034	3305	3881	4108	3523	2838	23985	0.00%	0
45	127	Birmingham and the Black Country	Rowley Regis and Tipton	2684	2566	2806	3334	3347	2833	2416	19767	0.00%	0

Sheet two (shown below) allows users to alter the variables used in the national model to reflect local circumstances. Any cell shaded blue can be amended. Other cells contain formulae that undertake the calculations based on user input. Initially all the variables are set the same as the national model.

Method	Average annual unit cost to NHS £	Effectiveness and consequences of failure:					Weighted cost of failure
		Annual failure rate	% of failures resulting in a live birth	% of failures resulting in an abortion	% of failures resulting in a miscarriage	% of failures resulting in an ectopic pregnancy	
Combined oral contraceptive pill	79	8.000%	45.67%	40.13%	12.85%	1.15%	1,575.14
IUD (intrauterine device)	48	0.200%	43.62%	38.16%	12.22%	6.00%	1,574.84
IUS (intrauterine system)	70	0.200%	43.62%	38.16%	12.22%	6.00%	1,574.84
Implant	103	0.005%	45.67%	40.13%	12.85%	1.15%	1,575.14
Injectable contraceptive	117	0.100%	45.67%	40.13%	12.85%	1.15%	1,575.14
Cost of failure			2811	552	360	1569	

Analysis by age	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Subtotal / weighted %
Population – local population	5,120	5,083	5,096	6,174	6,565	6,098	5,356	39,493

Current proportions of methods used	41.0%	49.0%	40.0%	31.0%	15.0%	12.0%	5.0%	26.7%
Oral contraceptive pill	41.0%	49.0%	40.0%	31.0%	15.0%	12.0%	5.0%	26.7%
IUD	1.0%	1.0%	3.0%	5.0%	5.0%	5.0%	4.0%	3.6%
IUS	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.7%
Implant	0.4%	0.9%	0.9%	0.7%	0.5%	0.2%	0.2%	0.5%
Injectable	2.7%	5.1%	4.1%	3.3%	2.5%	0.8%	0.8%	2.7%
Subtotal	45.1%	56.0%	49.0%	41.0%	24.0%	19.0%	11.0%	34.2%

Current number using each method	2,099	2,491	2,038	1,914	985	732	268	10,527
Oral contraceptive pill	2,099	2,491	2,038	1,914	985	732	268	10,527
IUD	51	51	153	309	328	305	214	1,411
IUS	-	-	51	62	66	61	54	294
Implant	20	46	46	43	33	12	11	211
Injectable	138	259	209	204	164	49	43	1,068
Subtotal	2,308	2,847	2,497	2,532	1,576	1,159	590	13,509

Current numbers of failures	168	199	163	153	79	59	21	842
Oral contraceptive pill	168	199	163	153	79	59	21	842
IUD	-	-	-	1	1	1	-	3
IUS	-	-	-	-	-	-	-	-
Implant	-	-	-	-	-	-	-	-
Injectable	-	-	-	-	-	-	-	-
Subtotal	168	199	163	154	80	60	21	845

Finally, a third sheet summarises the results for users.

	National population Standard assumptions	Local population Standard assumptions	Local population Local assumptions
Population: Women aged 15-49	11,966,465	39,493	39,493
Current average annual cost to provide contraception	£323,091	£1,066	£1,066
Estimated average annual cost to provide contraception	£335,795	£1,108	£1,108
Additional cost to provide contraception	£12,704	£42	£42
Current cost of contraception failures	£403,933	£1,331	£1,331
Estimated cost of contraception failures	£288,971	£955	£955
Increased saving through reduced failures	-£114,962	-£376	-£376
NET SAVING	-£102,258	-£334	-£334

Appendix C: Calculation of method costs

Calculation of method costs is based on two factors – the duration of method and the costs for each method to arrive at an average annual cost.

Duration of method:

	Yr1	Yr2	Yr3	Yr4	Yr5	Subtotal	Years
Oral contraceptive							
Initial 100 prescribed	100.0	55.0	49.5	44.6	40.1		
Discontinuation rate	45.00%	10.00%	10.00%	10.00%	10.00%		
Remaining fitted	55.00	49.50	44.55	40.10	36.09		
Average	77.50	52.25	47.03	42.32	38.09	257.19	
Average length of device duration							2.57
Intrauterine device							
Initial 100 fitted	100.0	78.4	67.9	59.9	54.5		
Discontinuation rate	21.60%	13.40%	11.80%	9.05%	5.65%		
Remaining fitted	78.40	67.89	59.88	54.46	51.39		
Average	89.20	73.15	63.89	57.17	52.92	336.33	
Average length of device duration							3.36
Intrauterine system							
Initial 100 fitted	100.0	74.8	64.8	59.4	55.9	Re-insertion	
Discontinuation rate	25.25%	13.25%	8.40%	5.95%	3.90%		
Remaining fitted	74.75	64.85	59.40	55.86	53.69		
Average	87.38	69.80	62.12	57.63	54.78	331.70	
Average length of device duration							3.32
Implant							
Initial 100 fitted	100.0	77.5	66.3			Re-insertion	
Discontinuation rate	22.50%	14.50%	9.00%				
Remaining fitted	77.50	66.26	60.30				
Average	88.75	71.88	63.28			223.91	
Average length of device duration							2.24
Injectable							
Initial 100 prescribed	100.0	50.0	47.5	45.1	42.9		
Discontinuation rate	50.00%	5.00%	5.00%	5.00%	5.00%		
Remaining fitted	50.00	47.50	45.13	42.87	40.73		
Average	75.00	48.75	46.31	44.00	41.80	255.86	
Average length of device duration							2.56

Unit costs for each method:

	First year unit cost to NHS £	Subsequent years cost £	Removal Cost £	Full cost £	Weighted average duration (years)	Average annual unit cost to NHS £
Oral contraceptive pill						
Initial consultation	44.80					
Followup consultations	44.80	44.80				
Weighted average ingredient cost	16.44	16.44	-	202.19	2.57	78.67
Total	106.04	61.24	-	202.19	2.57	78.67
Intrauterine device						
Initial consultation	44.80					
Consultation for insertion	40.32					
Followup consultation	20.16		22.40			
Device cost	9.73					
Consultation for removal						
Sterile pack for procedures	18.20		5.00			
Total	133.21	-	27.40	160.61	3.36	47.80
Intrauterine system						
Initial consultation	44.80					
Consultation for insertion	40.32					
Followup consultation	20.16		22.40			
Device cost	83.16					
Consultation for removal						
Sterile pack for procedures	18.20		5.00			
Total	206.64	-	27.40	234.04	3.32	70.49
Implant						
Initial consultation	44.80					
Consultation for insertion	35.84					
Followup consultation			49.28			
Device cost	90.00					
Consultation for removal						
Sterile pack for procedures	4.40		5.50			
Total	175.04	-	54.78	229.82	2.24	102.60
Injectable						
Initial consultation	44.80					
Followup consultations	77.65	77.65				
Weighted average ingredient cost	21.71	21.71				
Total	144.16	99.36	-	299.17	2.56	116.86

Costs for terminations

Cost of termination - Pbr Tariff + avg. MFF

HRG code	HRG name	Elective spell tariff (£)	Elective long stay trimpoint (days)	Non-elective spell tariff (£)	Non-elective long stay trimpoint (days)	Per day long stay stay payment (for days exceeding trimpoint)	Reduced short stay emergency tariff (@40% non-elective tariff)	EL / DC Activity Cost	EL / DC Total	NE Activity	NE Cost	Total Cost
M10	Surgical Termination of Pregnancy	558	1,1208	991	5,604	180	no	69,443	38,760,194	1,401	1,388,093	40,148,287
M11	Medical Termination of Pregnancy	474	1,1208	714	2,2416	242	no	24,330	11,534,814	5,170	3,691,119	15,225,934
												55,374,220
												551,84

Assumption is that ALL activity is at Tariff

Costs for miscarriages

Pbr Tariff

HRG's	RC2004 - Activity	EL Cost	DC Cost	NE Cost	EL	DC	NE	Total Activity	EL Cost	DC Cost	NE Cost	Total Cost	Weighted avg
M09	Threatened or Spontaneous Abortion Miscarriages dealt with by GP (£77.50)	401	401	489	2,198	4,352	66,090	72,640	881,398	1,745,152	32,318,010	34,944,560	481,06
													2412652.5
													77.50
													360.00

Ecopic Pregnancy

HRG's	RC2004 - Average cost	EL Cost	DC Cost	NE Cost	EL	DC	NE	Total Activity	EL Cost	DC Cost	NE Cost	Total Cost	Weighted avg
M06	Upper Genital Tract Intermediate Procedures	994.53	667.32	1,837.62	20214	57179	9356	86,749	20,103,329	38,156,742	17,192,745	75,452,816	869.78
M07	Upper Genital Tract Major Procedures	2,396.58	883.50	2,866.84	49320	1083	3962	54,365	118,199,525	956,835	11,358,426	130,514,786	2,400.71
M15	Non-Surgical Treatment of Ovary, Tube, or Pelvis Disorders	942.61	395.52	766.93	425	322	11846	12,593	400,611	127,358	9,085,081	9,613,051	763.36
													Cost at 05/06 Pbr Tariff
M06	Upper Genital Tract Intermediate Procedures	813.00	813.00	2,110.00	20214	57179	9356	86,749	16,433,982	46,486,527	19,741,160	82,661,669	952.88
M07	Upper Genital Tract Major Procedures	2,647.00	1,058.80	3,842.00	49320	1083	3962	54,365	130,550,040	1,146,680	15,222,004	146,918,724	2,702.45
M15	Non-Surgical Treatment of Ovary, Tube, or Pelvis Disorders	826.00	826.00	1,018.00	425	322	11846	12,593	351,050	285,972	12,059,228	12,676,250	1,006.61

Weighted average for ectopic pregnancy including laparoscopy

HRG's	avg cost	% use	Weighted average
M06	952.88	58%	552.67
M07	2,702.45	35%	945.86
M15	1,006.61	7%	70.46

Unit cost Pbr Tariff 1,568.99

Appendix E: References

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