

Rheumatoid arthritis

Costing report
Implementing NICE guidance

February 2009

NICE clinical guideline XX



This costing report accompanies the clinical guideline: 'The management of rheumatoid arthritis in adults' (available online at www.nice.org.uk/CG079).

Issue date: February 2009

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 amended to reflect local practice to estimate local impact.

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Contents

Executive summary.....	4
Supporting implementation.....	4
Significant resource-impact recommendations.....	4
Total cost impact	4
Benefits and savings	5
Local costing template.....	5
1 Introduction.....	6
1.1 Supporting implementation	6
1.2 What is the aim of this report?	6
1.3 Epidemiology of RA.....	7
1.4 Models of care	7
2 Costing methodology.....	7
2.1 Process.....	7
2.2 Scope of the cost-impact analysis	8
2.3 General assumptions made.....	11
2.4 Basis of unit costs.....	11
3 Cost of significant resource-impact recommendations	12
3.1 The multidisciplinary team	12
3.2 Monitoring the course of disease – early active disease.....	16
3.3 Monitoring the course of disease – annual review	18
3.4 Benefits and savings.....	19
4 Sensitivity analysis	20
4.1 Methodology	20
4.2 Impact of sensitivity analysis on costs	20
5 Impact of guidance for commissioners	22
6 Conclusion.....	22
6.1 Total national cost for England	22
6.2 Next steps.....	23
Appendix A. Approach to costing guidelines	24
Appendix B. Results of sensitivity analysis	25
Appendix C. References	26

Executive summary

This costing report looks at the resource impact of implementing the NICE guideline 'The management of rheumatoid arthritis in adults' 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 professionals.

Supporting implementation

The NICE clinical guideline on rheumatoid arthritis (RA) is supported by a range of implementation tools available on our [website](#) and detailed in the main body of this report.

Significant resource-impact recommendations

Because of the breadth and complexity of the guideline, this report focuses on recommendations that are considered to have the greatest resource impact and therefore require the most additional resources to implement or can potentially generate savings. They are:

- access to and periodic review within multidisciplinary teams
- monitoring early active disease
- annual reviews for people with RA.

Total cost impact

The annual changes in revenue costs arising from fully implementing the guideline are summarised in the table below.

Recurrent costs	£000s
Periodic review within multidisciplinary teams	41,504
Monitoring early active disease	9,664
Annual reviews	2,841
Net resource impact of RA guideline	54,008

The majority of costs associated with the implementation of this guideline are likely to be in secondary care, and will fall within the scope of 'Payment by results'. Some or all requirements of the multidisciplinary team may be carried out in primary or community care, and would then fall outside the scope of 'Payment by results'.

The costs arising from the implementation of this guideline are likely to fall within programme budgeting category 15, 'problems of the musculo skeletal system'.

There are no significant issues which may delay implementation of this guideline other than the recruitment of sufficient capacity within the multidisciplinary team.

Benefits and savings

Implementing the clinical guideline may bring the following benefits. Improved treatment of recent-onset RA should result in the avoidance or delayed onset of disability, and may reduce the severity of the disability. This will have consequent savings for the NHS and social services.

Access to specialist care promptly when needed may result in fewer future interventions, resulting in consequent savings to the NHS. It is not possible to quantify these savings.

Better control of recent-onset RA may also help to reduce working days lost due to pain or disability, with a consequent positive impact on the economy.

Local costing template

The costing template produced to support this guideline enables organisations in England, Wales and Northern Ireland to estimate the impact locally and replace variables with ones that depict the current local position. A sample calculation using this template showed that additional costs of £127,000 could be incurred for a population of 100,000.

1 Introduction

1.1 *Supporting implementation*

1.1.1 The NICE clinical guideline on RA is supported by the following implementation tools available on our website www.nice.org.uk/CG079:

- 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; key messages for local discussion
- audit support.

1.1.2 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 provides estimates of the national cost impact arising from implementation of guidance on RA in England. These estimates are based on assumptions made about current practice and predictions of how current practice might change following implementation.

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 guideline on RA and should be read in conjunction with it (see www.nice.org.uk/CG079).

1.2.4 The costing template that accompanies this report is designed to help those assessing the resource impact at a local level in England, Wales or Northern Ireland. NICE clinical guidelines are developmental standards in the Department of Health's document '[Standards for better health](#)'. The costing template may help inform local action plans demonstrating how implementation of the guideline will be achieved.

1.3 *Epidemiology of RA*

1.3.1 Estimates of the prevalence of RA vary between 0.8% (Symmons et al. 2002) and 1.1% (Lawrence 1961). The prevalence used in this costing work is 0.8%, corresponding to 316,500 adults in England.

1.3.2 The incidence of RA in England is taken from Symmons and colleagues (1994), and is shown in table 1.

Table 1 Incidence of RA

	Incidence	Annual number
Male	0.015%	2,900
Female	0.036%	7,300
Total		10,200

1.4 *Models of care*

1.4.1 RA is usually managed by multidisciplinary teams across both primary and secondary care. The diagnosis of RA is usually made in secondary care. Early stabilisation of active disease, and ongoing monitoring of established disease, is generally undertaken in secondary care.

2 Costing methodology

2.1 *Process*

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

2.1.2 The National Rheumatoid Arthritis Society conducts annual surveys on the treatment of RA, and these have been used to help inform the costing model. In other areas there is less information available and this led to problems in building a comprehensive bottom-up model for costing (a costing methodology where the unit cost of individual elements and number of units are estimated and added together to provide a total cost). To overcome this limitation, we had to make assumptions in the costing model. We developed these assumptions and tested them 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 the care of adults with RA.

2.2.2 The guidance does not cover people with other chronic inflammatory polyarthritis. Therefore, these issues are outside the scope of the costing work.

2.2.3 Due to the breadth and complexity of the guideline, we worked with the GDG and other professionals to identify the recommendations that would have the most significant resource-impact (see table 2). Costing work has focused on these recommendations.

Table 2 Recommendations with a significant resource impact

High-cost recommendations	Recommendation number	Key priority?
People with RA should have access to a named member of the multidisciplinary team (for example, the specialist nurse) who is responsible for coordinating their care.	1.3.1.2	✓
People with RA should have access	1.3.1.3	

<p>to specialist physiotherapy, with periodic review (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline), to:</p> <ul style="list-style-type: none"> • improve general fitness and encourage regular exercise • learn exercises for enhancing joint flexibility, muscle strength and managing other functional impairments • learn about the short-term pain relief provided by methods such as transcutaneous electrical nerve stimulators [TENS] and wax baths. 		
<p>People with RA should have access to specialist occupational therapy, with periodic review (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline), if they have:</p> <ul style="list-style-type: none"> • difficulties with any of their everyday activities, or • problems with hand function 	1.3.1.4	
<p>All people with RA and foot problems should have access to a podiatrist for assessment and periodic review of their foot health needs (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline).</p>	1.3.1.6	
<p>Measure CRP and key components of disease activity (using a composite score such as DAS28) regularly in people with RA to inform decision-making about:</p> <ul style="list-style-type: none"> • increasing treatment to control disease • cautiously decreasing treatment when disease is controlled. 	1.5.1.1	✓

<p>Offer people with RA an annual review to:</p> <ul style="list-style-type: none"> • assess disease activity and damage, and measure functional ability (using, for example, the Health Assessment Questionnaire, [HAQ]) • check for the development of comorbidities, such as hypertension, ischaemic heart disease, osteoporosis and depression • assess symptoms that suggest complications, such as vasculitis and disease of the cervical spine, lung or eyes • organise appropriate cross referral within the multidisciplinary team • assess the need for referral for surgery (see section 1.6) • assess the effect the disease is having on a person's life. 	<p>1.5.1.4</p>	
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2.2.4 Six of the recommendations in the guideline have been identified as key priorities for implementation, and two of these are among the six recommendations considered to have significant resource impact.

2.2.5 One key recommendation concerning referrals to specialist care is not considered to have a significant cost impact as the expert opinion of the GDG is that the number of referrals is unlikely to increase, although there may be a temporary increase as referrals are made earlier in disease progression.

2.2.6 One key recommendation relating to combination therapy for people with recent-onset RA is not considered to have a significant cost impact because of the low cost of combination therapy. In addition, combination therapy is already offered to many people

with recent-onset RA, depending on the severity of their disease, in many areas of England.

- 2.2.7 One key recommendation relating to people with recent-onset RA in whom combination therapy is not appropriate is not considered to have a significant cost impact as the numbers involved are considered to be small.
- 2.2.8 One key recommendation regarding cautious attempts to reduce drug doses in people with recent-onset RA once sustained and satisfactory levels of disease control have been achieved is not considered to have a significant cost impact nationally as savings from reduced drug doses are considered to be minimal. Local organisations should consider their prescribing practice to determine whether there is likely to be a significant cost impact locally.
- 2.2.9 We have limited the consideration of costs and savings to direct costs to the NHS that will arise from implementation. We have not included consequences for the individual, the private sector or the not-for-profit sector. If applicable, any realisable cost savings arising from a change in practice have been offset against the cost of implementing the change.

2.3 *General assumptions made*

- 2.3.1 The model is based on annual incidence and population estimates (see table 1), as well as the prevalence estimate given in paragraph 1.3.1.

2.4 *Basis of unit costs*

- 2.4.1 The way the NHS is funded has undergone reform with the introduction of 'Payment by results', based on a national tariff. The national tariff will be applied to all activity for which Healthcare Resource Groups (HRGs) or other appropriate case-mix measures are available. Where a national tariff price or indicative price exists

for an activity this has been used as the unit cost; this has then been inflated by the national average market forces factor of 1.1249.

2.4.2 Using these prices ensures that the costs in the report are the cost to the primary care trust (PCT) of commissioning predicted changes in activity at the tariff price, but may not represent the actual cost to individual trusts of delivering the activity.

2.4.3 For new or developing services, where there is no national average unit cost, organisations already undertaking this activity have been asked their current unit cost.

3 Cost of significant resource-impact recommendations

3.1 *The multidisciplinary team*

Background

3.1.1 People with RA should have access to a named member of the multidisciplinary team (for example, the specialist nurse) who is responsible for coordinating their care (recommendation 1.3.1.2).

3.1.2 People with RA should have access to specialist physiotherapy, with periodic review (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline), to:

- improve general fitness and encourage regular exercise
- learn exercises for enhancing joint flexibility, muscle strength and managing other functional impairments
- learn about the short-term pain relief provided by methods such as transcutaneous electrical nerve stimulators (TENS) and wax baths (recommendation 1.3.1.3).

- 3.1.3 People with RA should have access to specialist occupational therapy, with periodic review (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline), if they have:
- difficulties with any of their everyday activities, or
 - problems with hand function (recommendation 1.3.1.4).
- 3.1.4 All people with RA and foot problems should have access to a podiatrist for assessment and periodic review of their foot health needs (see recommendations 1.5.1.3 and 1.5.1.4 in the guideline) (recommendation 1.3.1.6).

Assumptions made

- 3.1.5 We assume that access to and periodic review by any member of the multidisciplinary team is equivalent to an average of one appointment or review with each of physiotherapy, occupational therapy and podiatry each year. This will vary according to a person's needs, and will also vary across team members. We also assume an average of two appointments with a named multidisciplinary team contact will be needed each year, to coordinate a person's care, and we assume this contact is likely to be a specialist nurse.
- 3.1.6 The proportion of people with RA who have access to each member of the multidisciplinary team at least annually is taken from the National Rheumatoid Arthritis Society survey (2006). The figures are 57.1% for the specialist nurse, 7.9% for physiotherapy, 10.5% for occupational therapy and 18.1% for podiatry. We assume that people accessing each member of the team less frequently than annually may require an additional appointment each year. As stated above, however, this will depend on individual requirements; some people may require more frequent reviews and some less.

Table 3 Estimated current number of RA patients accessing designated multidisciplinary teams and other healthcare professionals at least annually

	Prevalence of RA	Proportion accessing care (%)	Number
Proportion of people with RA accessing designated multidisciplinary team contact	316,500	57.1	180,700
Proportion of people with RA accessing physiotherapy	316,500	7.9	25,000
Proportion of people with RA accessing occupational therapy	316,500	10.5	33,200
Proportion of people with RA accessing podiatry	316,500	18.1	57,300

3.1.7 The proportion of people who would benefit from occupational therapy is taken from section 6.3.1 of the full guideline on rheumatology arthritis, which stated that 60% of people with early disease may benefit from occupational therapy for hand function.

3.1.8 As problems with feet are almost universal in people with RA (section 6.4.1 of full guideline), we assume that all people with RA should have access to podiatry. We assume that, based on the expert clinical opinion of the GDG, 50% of patients will require a review each year.

3.1.9 The cost of an appointment or review with each member of the multidisciplinary team is assumed to be that of a follow-up non-consultant led appointment in each of rheumatology, physiotherapy, occupational therapy and podiatry. The national average cost of each of these has been taken from 2006–07 reference cost submissions, uplifted to 2008–09 rates.

Table 4 Proposed number of RA patients to have access to designated multidisciplinary teams and other health care professionals each year

	Prevalence of RA	Future proportion accessing care (%)	Number
Proportion of people with RA accessing designated multidisciplinary team contact	316,500	100	316,500
Proportion of people with RA accessing physiotherapy	316,500	100	316,500
Proportion of people with RA accessing occupational therapy	316,500	60	189,900
Proportion of people with RA accessing podiatry	316,500	50	158,200

Cost summary

3.1.10 The net cost of increasing access to the multidisciplinary team is summarised in table 5.

Table 5 Cost impact of increased access to multidisciplinary team

	Annual cost	Current		Proposed		Change	
		Number of people	Cost (£000)	Number of people	Cost (£000s)	Number of people	Cost (£000s)
Multidisciplinary team contact	£170.04	180,700	30,725	316,500	53,809	135,800	23,084
Physiotherapy	£30.40	25,000	760	316,500	9,620	291,500	8,860
Occupational therapy	£45.73	33,200	1,519	189,900	8,683	156,700	7,164
Podiatry	£23.74	57,300	1,360	158,200	3,756	100,900	2,396
Totals			34,364		75,868		41,504

Other considerations

3.1.11 The recommendations are not prescriptive in what constitutes a periodic review, and therefore the costs outlined above could be significantly more or less than estimated if periodic reviews are conducted at a frequency other than annually. This is explored more fully within the sensitivity analysis.

- 3.1.12 Local organisations should determine with the aid of their clinicians the local frequency of periodic reviews and amend the local template accordingly.
- 3.1.13 If part or all of the multidisciplinary team is within a community setting, there may be additional or reduced costs of implementation.
- 3.1.14 All people with RA should have access to early occupational therapy and podiatry assessment, although not all will need subsequent appointments.

3.2 *Monitoring the course of disease – early active disease*

Background

- 3.2.1 In people with recent-onset active RA, measure CRP and key components of disease activity (using a composite score such as DAS28) monthly until treatment has controlled the disease to a level previously agreed with the person with RA (recommendation 1.5.1.2).

Assumptions made

- 3.2.2 We assume that key constituent parts of disease activity and CRP should be measured in secondary care, in a follow-up rheumatology outpatient appointment.
- 3.2.3 We assume (based on a range of expert opinions) that people with early active disease are currently seen by a specialist every 3 months. The frequency of follow-up appointments for people with early active disease varies across England between monthly and biannually, with the modal frequency every 3 months.
- 3.2.4 The cost of a follow-up outpatient appointment is taken to be the national tariff for 2008–09, uplifted as in paragraph 2.4.1.

Cost summary

3.2.5 The net cost of monitoring the course of early active disease is summarised in table 6.

Table 6 Cost impact of monitoring the course of early active disease

		Current		Proposed		Change	
	Unit cost	Numbers of appts	Cost (£000)	Numbers of appts	Cost (£000s)	Numbers of appts	Cost (£000s)
Outpatient appointments for people with early active disease	£118.11	40,900	4,832	122,700	14,496	81,800	9,664

Other considerations

3.2.6 If monitoring of early active disease is carried out in a setting other than secondary care, such as by a GP with a special interest in rheumatology, then the costs outlined above may reduce.

3.2.7 Local organisations should check their current review arrangements and amend the assumptions in the local costing template accordingly.

3.3 *Monitoring the course of disease – annual review*

Background

3.3.1 Offer people with RA an annual review to:

- assess disease activity and damage, and measure functional ability (using, for example, the Health Assessment Questionnaire [HAQ])
- check for the development of comorbidities, such as hypertension, ischaemic heart disease, osteoporosis and depression
- assess symptoms that suggest complications, such as vasculitis and disease of the cervical spine, lung or eyes
- organise appropriate cross referral within the multidisciplinary team
- assess the need for referral for surgery (see section 1.6 in the guideline)
- assess the effect the disease is having on a person's life.

Assumptions made

3.3.2 The proportion of people with RA who have a comprehensive annual review with a specialist at least annually is 92.4%. This figure is taken from the National Rheumatoid Arthritis Society survey (2006).

3.3.3 We cost each comprehensive annual review as a follow-up outpatient appointment using the national tariff for 2008–09, uplifted as in paragraph 2.4.1.

Cost summary

3.3.4 The net cost of annual reviews is summarised in table 7.

Table 7 Cost impact of annual reviews

	Unit cost	Current		Proposed		Change	
		Numbers of appts	Cost (£000)	Numbers of appts	Cost (£000s)	Numbers of appts	Cost (£000s)
Annual reviews	£118.11	292,400	34,537	316,500	37,378	24,100	2,841

Other considerations

- 3.3.5 Current annual reviews may not include all the elements recommended above. Therefore, a comprehensive annual review may result in the provider facing a additional costs.
- 3.3.6 A comprehensive annual review is likely to indicate the need for reviews with other members of the multidisciplinary team, as covered in section 3.1.
- 3.3.7 If annual reviews are carried out in a setting other than secondary care, such as in outreach clinics in community settings, then the costs outlined above may reduce.

3.4 Benefits and savings

- 3.4.1 Improved treatment of recent-onset RA should result in the avoidance or delayed onset of disability, and may reduce the severity of the disability. This will have consequent savings for the NHS and social services.
- 3.4.2 Access to specialist care promptly when needed may result in fewer future interventions, resulting in consequent savings to the NHS. It is not possible to quantify these savings.
- 3.4.3 Better control of recent-onset RA may also help to reduce working days lost due to pain or disability, with a consequent positive impact on the economy.

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 and predictions of how things might change as a result of implementing the guidance and is therefore subject to a degree of uncertainty.
- 4.1.2 As part of discussions with practitioners, we discussed possible minimum and maximum values of variables, and calculated their impact on costs across this range.
- 4.1.3 Wherever possible we have used the national tariff plus market forces factor to determine cost. We used the variation of costs for the 25th and 75th percentiles from reference costs compared with the reference cost national average as a guide to inform the maximum and minimum range of costs.
- 4.1.4 It is not possible to arrive at an overall range for total cost because the minimum or maximum of individual lines would not occur simultaneously. We undertook one-way simple sensitivity analysis, altering each variable independently to identify those that have greatest impact on the calculated total cost.
- 4.1.5 Appendix B contains a table detailing all variables modified and the key conclusions drawn are discussed below.

4.2 Impact of sensitivity analysis on costs

Prevalence of RA

- 4.2.1 Varying the prevalence of RA between 0.8% and 1.1% of adults, as per the literature, results in a cost variance of £16.6 million, as this impacts on the number of appointments each year with each member of the specialist team.

Future proportion of adults with RA accessing designated multidisciplinary team contact each year

4.2.2 Varying the frequency of review appointments with the specialist nurse from 2 per year to 1 per year results in a cost variance of £26.9 million. Local organisations should therefore discuss with their clinicians the likely frequency of appointments with the specialist nurse.

Future proportion of adults with RA accessing occupational therapy each year

4.2.3 Varying the frequency of review appointments with occupational therapy from annually to biennially (every 2 years) results in a cost variance of £10.1 million. Local organisations should therefore discuss with their clinicians the likely frequency of appointments with occupational therapy.

5 Impact of guidance for commissioners

- 5.1.1 The majority of costs associated with the implementation of this guideline are likely to be in secondary care, and will fall within the scope of 'Payment by results'. Some or all requirements of the multidisciplinary team may be carried out in primary or community care, and would then fall outside the scope of 'Payment by results'.
- 5.1.2 The costs arising from the implementation of this guideline are likely to fall within programme budgeting category 15, 'problems of the musculo skeletal system'.

6 Conclusion

6.1 *Total national cost for England*

- 6.1.1 Using the significant resource-impact recommendations shown in table 2 and assumptions specified in section 3 we have estimated the annual cost impact of fully implementing the guideline in England to be £54.0 million. Table 8 shows the breakdown of cost of each significant resource-impact recommendation.

Table 8 Costs of implementing the RA guideline in England

Recurrent costs	£000s
Periodic review within multidisciplinary teams	41,504
Monitoring early active disease	9,664
Annual reviews	2,841
Net resource impact of RA guideline	54,008

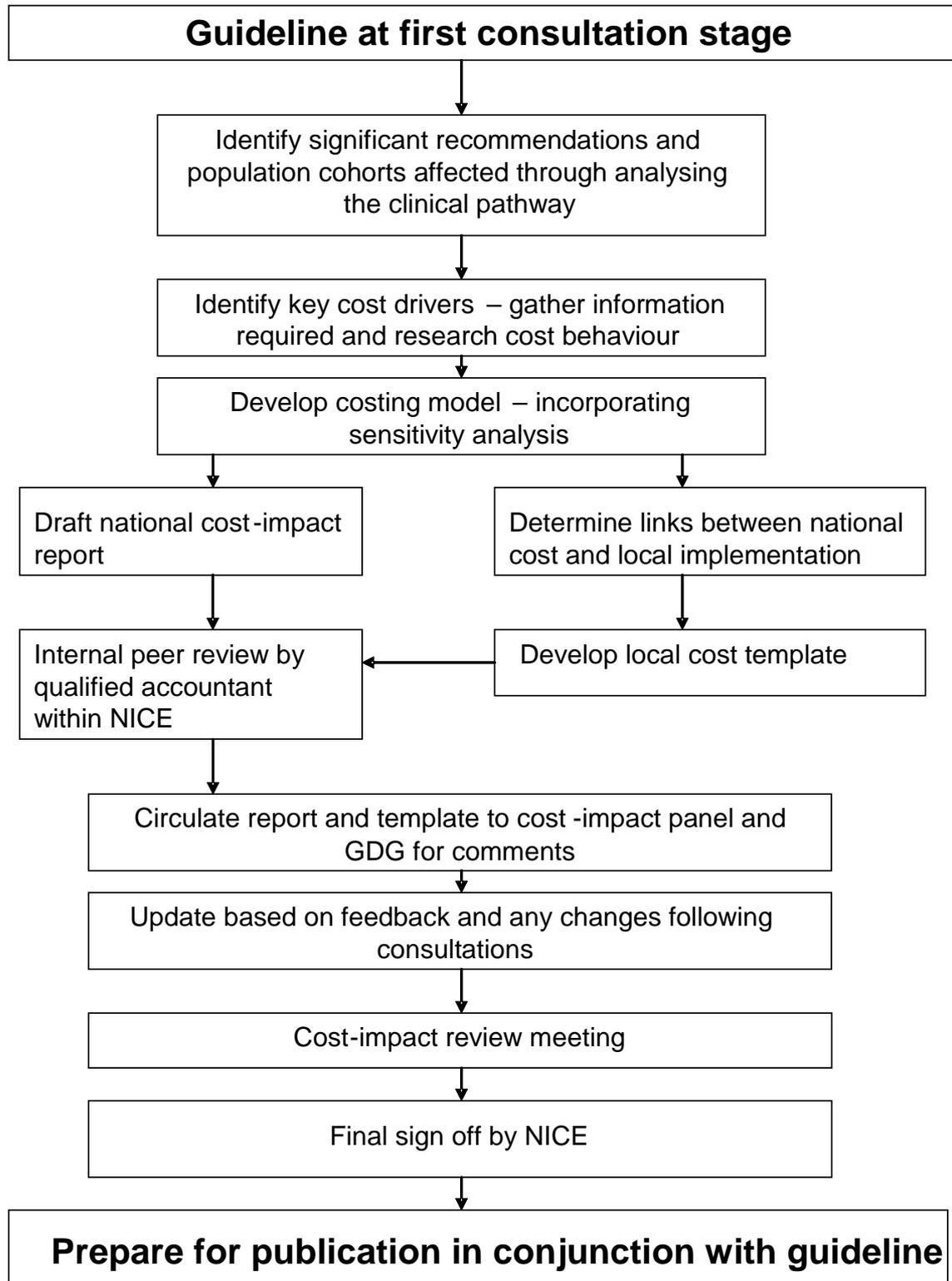
- 6.1.2 We applied reality tests against existing data wherever possible, but this was limited by the availability of detailed data. We consider this assessment to be reasonable, given the limited detailed data regarding diagnosis and treatment paths and the time available. However, the costs presented are estimates and should not be taken as the full cost of implementing the guideline.

- 6.1.3 There are no significant issues which may delay implementation of this guideline other than the recruitment of sufficient capacity within the multidisciplinary team.

6.2 *Next steps*

- 6.2.1 The local costing template produced to support this guideline enables organisations such as primary care trusts (PCTs) or health boards in Wales and Northern Ireland 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 population of 100,000 could expect to incur additional costs of £127,000. Use this template to calculate the cost of implementing this guidance in your area.

Appendix A. Approach to costing guidelines



Appendix B. Results of sensitivity analysis

Assessment of sensitivity costs to a range of variables							
Parameter varied	Baseline value	Minimum value	Maximum value	Baseline costs (£000s)	Minimum costs (£000s)	Maximum costs (£000s)	Change (£000s)
Prevalence of RA – aged 18 and over	0.8%	0.8%	1.1%	54,008	54,008	70,637	16,629
Cost per designated multidisciplinary team contact appointment	£85.02	£53.92	£99.42	54,008	45,564	57,918	12,354
Cost per physiotherapy appointment	£30.40	£24.24	£39.46	54,008	52,213	56,649	4,436
Cost per occupational therapy appointment	£45.73	£35.45	£63.10	54,008	52,398	56,729	4,331
Cost per podiatry appointment	£23.74	£20.79	£34.25	54,008	53,710	55,069	1,359
Future proportion of people with RA accessing designated multidisciplinary team contact each year	100%	50%	100%	54,008	27,103	54,008	26,905
Future proportion of people with RA accessing physiotherapy each year	100%	50%	100%	54,008	49,198	54,008	4,810
Future proportion of people with RA accessing occupational therapy each year	60%	30%	100%	54,008	49,667	59,797	10,130
Future proportion of people with RA accessing podiatry each year	50%	50%	100%	54,008	54,008	57,764	3,756
Current average number of specialist appointments in first year of diagnosis	4	2	8	54,008	49,176	56,424	7,248
Cost per specialist appointment	£118.11	£86.66	£138.89	54,008	50,678	56,208	5,530

Appendix C. References

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