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National cost-impact report

Implementing the NICE clinical guideline on depression in children and young people

Clinical Guideline CG028
National cost impact report to accompany 'Depression in children and young people: Identification and management in primary, community and secondary care'

Issue date: October 2005

This report is an assessment of the costs of implementing the recommendations in 'Depression in children and young people'.

The Institute's full guidance on depression in children and young people is available from the NICE website (www.nice.org.uk/CG028NICEguideline).

An abridged version of the guidance (a 'quick reference guide') is also available from the NICE website (www.nice.org.uk/CG028quickrefguide). Printed copies of the quick reference guide can be obtained from the NHS Response Line: telephone 0870 1555 455 and quote reference number N0910.

Information for the public is available from the NICE website (www.nice.org.uk/CG028publicinfo) or from the NHS Response Line (quote reference number N0911).

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.

National Institute for Health and Clinical Excellence

MidCity Place

71 High Holborn

London WC1V 6NA

www.nice.org.uk

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Executive summary

Background

This report looks at the cost impact of implementing the NICE guideline 'Depression in children and young people: Identification and management in primary, community and secondary care' in England. The costing method adopted is outlined in Appendix A; it uses the most accurate data available and expert opinion. The guideline and implementation tools are available on the NICE website at www.nice.org.uk/CG028.

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 given the limited detailed data regarding diagnosis and treatment paths. It was produced in conjunction with key clinicians and reviewed by people with clinical and financial expertise.

Because of the breadth and complexity of the guideline, the evaluation focuses on areas that are considered to require the most additional resources to implement. In conjunction with the Guideline Development Group and key clinicians, we identified a number of recommendations that had significant implications for resource utilisation which are detailed in Table 1 of the report. They include increasing the use of watchful waiting, reducing prescribing of

anti-depressants, increasing provision of therapy and training for staff involved in identifying, assessing and treating depression in children and young people.

Total cost impact

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

Recurrent annual net cost of fully implemented recommendations with significant resource impact for England

	Annual recurrent net cost £000s
Cost of additional watchful waiting appointments by Primary Healthcare Practitioners	964
Net cost of active psychological intervention	19,879
Savings from reduced prescribing of anti-depressants	-1,988
Training of CAMHS tier 1 by CAMHS tier 2/3	611
Total	**19,466**

There is also an estimated non-recurrent cost of providing training for new staff delivering therapies, and training for existing staff in therapy techniques specific to children and young people of £1,721,000.

In the short term (to the end of March 2007), mental health services are outside the scope of 'payment by results' (PbR). The cost of implementing this guideline is unlikely to affect services within the scope of the current tariff.

Based on available evidence, it is estimated that approximately 30% of children and young people will recover fully within the first three months of a depressive episode. However, without effective treatment depressive morbidity may persist into adulthood (Knapp et al, 2000). Early effective treatment will therefore reduce healthcare costs far beyond childhood.

Implementation

The NICE clinical guideline on depression in children and young people is supported by three implementation tools.

- Costing tools
  - A national costing report (this document)
  - A local costing template; a simple spreadsheet that can used to estimate the local cost of implementation
- A slide set; outlining key messages for local discussion
- Implementation advice; practical suggestions on how to address potential barriers to implementation

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 approximately 30,000 5–18 year olds could expect to incur additional costs of just over £64,000.

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 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.

The barriers to successful implementation of the guideline have been identified as: access to therapy, training of healthcare professionals and capacity and access to training for therapists. General practitioners have indicated that waiting time for psychotherapy services can be as long as six months. During this waiting period, general practitioners often prescribe antidepressant medication for young people in order to start the process of treatment. NICE recommends that medication is only used in combination with psychological treatment.

We have estimated that an increase of 493 WTE therapists will be required nationally to meet the recommendations for psychological intervention; this is equivalent to 1.6 per PCT. The use of group CBT for children and young

people with mild depression would reduce the waiting time for psychological interventions and increase the availability of therapy resources.

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 'Depression in children and young people: Identification and management in primary, community and secondary care'. The project has two main outputs:

- this report, which gives estimates of the national costs for the NHS in England
- 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 depression in children and young people and should be read in conjunction with it (see www.nice.org.uk/CG028).

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 Epidemiology of depression in children

1.2.1 The guideline makes recommendations for the identification and treatment of depression in children (5 to 11 years) and young people (12 to their 18th birthday) in primary, community and secondary care.

1.2.2 The guideline divides depression into mild, moderate and severe, and severe depression (with or without psychotic symptoms). Recurrent depression and dysthymia (mild depression that persists for over a year) is also addressed by the guideline. Children and young people identified as having severe depression with or without psychotic symptoms are usually referred directly to active psychological therapy or to inpatient facilities (tier 4). Currently, an estimated 1000 children and young people nationally are referred to tier 4 each year and this is not expected to change significantly. Therefore, costing work has not included this element. Children and young people that are referred for active psychological therapy are included in the costing model.

1.2.3 The incidence of depression has been estimated as 0.5% to 0.75% in children aged 6–11 years and 2.0% to 4.0% in young people aged 12–18 years[1]. The costing model uses the average for each range (0.63% and 3.0% respectively) assuming that five year olds have the same incidence as 6 year olds. The minimum and maximum incidence will be addressed in the sensitivity analysis.

1.3 Models of care

1.3.1 It is estimated that currently only 25% of children and young people with depression are detected and receive treatment (Andrews, G et al. 2000). This estimate, along with published studies and clinical advice was the starting point for understanding and developing a generalised model of care.

[1] Estimate taken from section 3.5.1 of full guideline

1.3.2 In order to establish the model of care, we contacted healthcare practitioners in Primary Care Trusts (PCTs) and in children and adolescent mental health service (CAMHS) around the country. Discussions with these practitioners supported the assertion that treatment varies considerably across the country

1.3.3 Based on these discussions, we created a simple model of care that incorporates psychological and pharmacological treatments. We made assumptions about how this model may change following the implementation of the guideline. The model also looks at the workforce required to deliver therapy and what training may be required.

2 Costing methodology

2.1 Process

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

2.1.2 Very little information is systematically collected about depression in children and young people, and this led to problems in building a comprehensive bottom-up model for costing.

2.1.3 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.

2.1.4 Using the local template will allow local organisations to vary activity and cost figures to better reflect local circumstances.

2.2 Scope of the cost-impact analysis

2.2.1 The guideline makes recommendations for the identification and treatment of depression in children (5–11 years) and young people (12–18 years) in primary, community and secondary care. The model makes a similar split. It does not include children under 5, young people over 19, or those with bipolar disorder.

2.2.2 This report considers direct costs to the NHS in England that will arise from implementation. Where applicable, any cost saving arising from a change in practice has been offset against the cost of implementing the change. It is recognised that other organisations such as education, social services and charitable bodies play a part in the recognition and management of depression in children. The provision of services outside the NHS is excluded from the scope of this costing work.

2.2.3 We initially considered all the recommendations in the guideline. However, because of the breadth and complexity of the guideline, we worked with the GDG and other healthcare professionals to identify the recommendations that would have the most significant impact on resources (see Table 1). Costing work has focused on these recommendations.

Table 1 Recommendations that have significant impact on resources

Key areas	Recommendation number	Key priority?
Watchful waiting		
For children and young people with diagnosed mild depression who do not want an intervention or who, in the opinion of the healthcare professional, may recover with no intervention, a further assessment should be arranged, normally within 2 weeks ('watchful waiting').	1.5.1.1	
Psychological treatments		
Following a period of up to 4 weeks of watchful waiting, all children and young people with continuing mild depression and without significant comorbid problems or signs of suicidal ideation, should be offered individual non-directive supportive therapy, group CBT or guided self-help for a limited period (approximately 2–3 months).	1.5.2.1	
Children and young people with mild depression who do not respond after 2 to 3 months to non-directive supportive therapy, group CBT or guided self-help should be referred for review by a tier 2 or 3 CAMHS team.	1.5.2.2	

Key areas	Recommendation number	Key priority?
Children and young people with moderate to severe depression should be offered, as a first-line treatment, a specific psychological therapy (individual CBT, interpersonal therapy or shorter-term family therapy); it is suggested that this should be of at least 3 months duration.	1.6.1.2	✓
Antidepressant medication		
Antidepressant medication should not be used for the initial treatment of children and young people with mild depression.	1.5.2.3	✓
Antidepressant medication should not be offered to a child or young person with moderate to severe depression except in combination with a concurrent psychological therapy.	1.6.4.1 (part)	✓
Training for mental healthcare professionals		
Psychological therapies used in the treatment of children and young people should be provided by therapists who are also trained child and adolescent mental healthcare professionals.	1.1.5.4	✓
CAMHS tier 2 or 3 should work with health and social care professionals in primary care, schools and other relevant community settings to provide training and develop ethnically and culturally sensitive systems for detecting, assessing, supporting and referring children and young people who are either depressed or at significant risk of becoming depressed.	1.3.1.5	✓

2.2.4 Ten of the recommendations in the guideline have been identified as key priorities for implementation, and five of these are also among the recommendations considered to have significant resource impact.

2.3 General assumptions made

2.3.1 The model is based on incidence and population estimates (see Table 2).

Table 2 Incidence of depression in children and young people

	5-11 year olds		12-18 year olds		Total
	Incidence	Number	Incidence	Number	
Population of children and young people in England		4,539,445		4,633,007	9,172,452
Mild depression	0.54%	24,513	2.25%	104,243	128,756
Moderate & severe depression	0.09%	4,086	0.75%	34,748	38,834
Total child and young person population affected	**0.63%**	**28,599**	**3.00%**	**138,991**	**167,590**

2.3.2 One of the key assumptions is that not all clients included in the incidence figures will be subject to diagnosis and treatment. Various studies find that 70–80% of children and young people with depression are not receiving treatment. Andrews et al (2002) has estimated that about 75% of children and young people who are clinically identifiable as having a mood disorder are undetected in the community. This suggests that the percentage of children and young people who seek and are given treatment by the NHS for depression is about 25%. Based on this estimate, 42,000 children and young people are currently receiving treatment for depression in England.

2.3.3 A key recommendation in the guideline is to train healthcare professionals to detect and assess children and young people who may be at risk of depression. Another key recommendation is to train CAMHS professionals to improve accurate diagnosis of depressive conditions. Both these recommendations when implemented will have the effect of increasing the numbers of children and young people who are detected and treated. Based on discussions with clinicians, we are assuming that the percentage of children and young people who are detected,

diagnosed and receive treatment, will increase from 25% to 35%. This indicates that 17,000 more children and young people will be diagnosed and treated. This is a general assumption that underpins the future costs in the costing model.

2.3.4 The assumptions made to support the costs of specific recommendations are detailed in section 3 of this report. Appendix C summarises the main assumptions about the current and future models of care, and the proportion of patients who will have various treatments.

2.4 Basis of unit costs

2.4.1 The way the NHS is funded has recently undergone reform with the introduction of Payment by Results, based on a national tariff. The guideline recommends the use of specific psychological interventions such as cognitive behavioural therapy (CBT), interpersonal therapy (IPT), and family therapy. These psychological therapies are not currently included in the current national tariff. At present, costs arising from implementation of this clinical guideline are outside the scope of Payment by Results.

2.4.2 All of the above psychological therapies are provided by statutory, non-statutory and voluntary organisations. However, cost calculations have been based on therapies provided by NHS staff only. These therapies are provided by nurses, psychologists, and psychotherapists who are trained to deliver psychological therapy.

2.4.3 The cost of a course of therapy is based on the unit cost of psychological therapists, of £56 per hour of clinical contact, based on the following assumptions and summarized in Table 3.

2.4.4 The average grade under Agenda for Change is Band 7, although it is recognised that locally services may be provided by staff on higher or lower grades.

2.4.5 It is assumed that four hours of supervision will be required per month and that the cost of supervision is £45 per hour. This is based on

discussions with providers that pay for clinical supervision to be delivered externally. Internal provision (for example, delivered by Band 8A in their non-patient contact time) will be slightly lower than this.

2.4.6 The CAMHS mapping exercise (2002) estimates that nationally, 48% of staff time is spent in direct clinical contact.

Table 3 Assumptions about therapist hourly rate

Basic mid-point salary plus on-costs Band 7	£37,936
4 hours supervision x 12 months at £45 per hour	£2,160
Cost per therapist	£40,096
Working weeks per year	40
Working hours per week	37.5
Percentage of time spent with clients	48%
Total hours per year of patient contact time	720
Cost per hour of patient contact	£56

2.4.7 This table includes staff costs only and not indirect costs, for example, the amount of clinic space required may change with a change in staff numbers and service delivery configurations.

3 Cost of significant resource impact recommendations

3.1 Watchful waiting for children and young people with mild depression

Background

3.1.1 For children and young people with diagnosed mild depression who do not want an intervention or who, in the opinion of the healthcare professional, may recover with no intervention, a further assessment should be arranged, normally within 2 weeks ('watchful waiting') (NICE guideline recommendation 1.5.1.1).

Assumptions made

3.1.2 It is very rare for a diagnosis of depression to be made at this stage, hence the greater majority of children and young people presenting with symptoms are referred directly to mental health services. Based on expert opinion, we estimate that 5% of children and 25% of young people on the current care pathway are managed with watchful waiting, each requiring an average of two appointments over a 4 week period, with 80% of patients returning for their second appointment. This means that approximately 16,000 appointments can be attributed to primary care watchful waiting.

3.1.3 NICE recommends that primary healthcare professionals are trained to detect symptoms of depression, and to assess children and young people who may be at risk of depression. This could reduce the direct referrals to mental health services for those patients assessed to have mild depression, who should be subject to watchful waiting. The future care pathway assumes that 90% of 5–18 year olds with mild depression are subject to watchful waiting, with 80% returning for their second appointment. This will increase the number of appointments attributed to watchful waiting to over 73,000.

Cost summary

3.1.4 A GP appointment has been calculated as £17.00 in the reference *Unit Costs of Health and Social Care 2004*, and this figure is used to calculate the cost of watchful waiting.

3.1.5 The increase in watchful waiting for children and young people diagnosed with mild depression amounts to less than one appointment per GP based on 50,000 GPs. This represents a net opportunity cost and does not indicate an increase in GP numbers. This is summarised in Table 4.

Table 4 Net increase in cost of watchful waiting

		Current		Proposed		Change	
	Unit Cost	Activity	Cost £000s	Activity	Cost £000s	Activity	Cost £000s
Watchful waiting	£17	16,281	277	73,006	1,241	56,725	964

Other considerations

3.1.6 Children and young people with depression who do not attend follow-up appointments should be contacted by healthcare professionals. This may mean an increase in administrative time, but no significant additional cost is anticipated.

3.2 Psychological treatment for children and young people

Background

3.2.1 Based on available evidence, it is estimated that approximately 30% of children and young people will recover fully within the first 3 months of a depressive episode. However, without effective treatment, depressive morbidity may persist into adulthood with increasing severity (Metzer et al, 2000). Therefore, early effective treatment will reduce healthcare costs ranging far beyond childhood. Appendix D depicts the proportions of children and young people that are assumed to go through the proposed treatment stages. It only shows costed elements, and not the full care pathway.

3.2.2 Following a period of up to 4 weeks of watchful waiting, all children and young people with continuing mild depression and without significant comorbid problems or signs of suicidal ideation, should be offered individual non-directive supportive therapy, group CBT or guided self-help for a limited period (approximately 2 to 3 months). (1.5.2.1 part).

3.2.3 Children and young people with mild depression who do not respond after 2 to 3 months to non-directive supportive therapy, group CBT or

guided self-help should be referred for review by a tier 2 or 3 CAMHS team (1.5.2.2).

3.2.4 Children and young people with moderate to severe depression should be offered, as a first-line treatment, a specific psychological therapy (individual CBT, interpersonal therapy or shorter-term family therapy); it is suggested that this should be of at least three months duration. (1.6.1.2)

Assumptions made

3.2.5 Expert opinion suggests that approximately 95% of children and 75% of young people identified are currently referred directly to the CAMHS tier 2/3 service for psychological therapy, and 60% of children and 11% of young people are referred following watchful waiting. The therapy that is currently offered is a mix of psychotherapy, cognitive behavioural therapy and counselling, mostly on an individual basis. Based on discussions with clinicians delivering therapy it is estimated that currently 49% of children and 50% of young people require additional therapy after the initial course of intensive therapy.

3.2.6 We have assumed that currently an initial course of intensive therapy is twelve sessions long and additional therapy is six sessions long. The cost per patient includes an assumption that the initial session is 1.5 hours, followed by 1 hour sessions, with a reduction equivalent to 30% of children dropping out after attending seven sessions of the intensive course, and 20% dropping out after attending four sessions of the additional course. This equates to a weighted average course length of 11 hours for intensive therapy and 6.1 hours for additional therapy. At £56 per hour of clinical contact, this means the average cost per course of therapy is £616 and £342 respectively.

3.2.7 Following implementation of the guideline, improved assessment and detection and appropriate referral would result in a greater proportion of children and young people with mild depression offered group CBT. Group therapy is currently not offered to children, and is rarely used for

young people, however, it could be an effective method of improving access to treatment for mild depression.

3.2.8 Approximately 50% of children and young people with mild depression could be referred to group CBT, after up to 4 weeks of watchful waiting. This is 16,000 children and young people. A study of group CBT (Clarke, 2002) indicates that the average group CBT would be 8 people undertaking 16 sessions of 2 hour duration. This indicates that over 2000 courses of group therapy would be required. Using a cost of £56 per therapist hour, the cost for each course would be £1792, no reduction to allow for drop out is assumed because the full course would still be delivered to remaining patients.

3.2.9 In the proposed pathway of care an estimated 50% of these children and young people would require further individual therapy following group CBT sessions. This represents 8000 of all the children and young people diagnosed with mild depression. In line with the recommendation, it is assumed that all patients identified with moderate to severe depression are offered a specific psychological therapy in the first instance.

3.2.10 Based on expert opinion, the first line treatment is assumed to be 15 sessions long with 10% of patients dropping out after attending an average of 10 sessions. This equates to a weighted average course length of 15 hours (assuming that the first session is one and a half hours long). At a cost of £56 per hour of clinical contact, the course cost is £840.

3.2.11 Where first line treatment is not successful, additional intensive therapy is recommended, and expert opinion indicated that 70% of 5–18 year olds would progress to intensive therapy. This is assumed to be 30 sessions long, with 10% of patients dropping out after attending an average of 14 sessions. The weighted course length is 28.9 hours at a cost of £1618 per course.

Cost summary

3.2.12 The net cost of recommended psychological intervention is summarised below:

Table 5 Net cost of psychological interventions for England

		Current		Proposed		Change	
	Cost of one course of therapy £	**Number of cases**	**Cost £000s**	**Number of cases**	**Cost £000s**	**Number of cases**	**Cost £000s**
Current psychological treatment							
12 sessions, followed by;	616	33,790	20,815				
6 sessions	342	16,826	5,754				
Proposed psychological treatment							
Group CBT (courses)	1,792			2,028	3,634		
First line treatment of 15 sessions	840			21,704	18,231		
30 sessions of Intensive treatment	1,618			15,193	24,582		
Total			26,569		46,447		19,878

Other considerations

3.2.13 We recognise that an increase in detection and the recommendation for extended intensive therapy treatment will result in an increased demand for therapy services. Group CBT sessions, delivered by appropriately trained staff will enable the demand to be met without significant increases in therapy staff numbers. However, there may be a requirement to identify or provide suitable accommodation for group CBT sessions.

3.2.14 The increased demand for therapy services arising from increased numbers of patients entering the care pathway, and courses of therapy being longer for those that require it, has implications for workforce levels and training capacity. This is detailed in section 3.4.

3.3 Antidepressant medication for children and young people

Background

3.3.1 The guideline recommends that antidepressant medication should not be used for the initial treatment of children and young people with mild depression (1.5.2.3).

3.3.2 The guideline recommends that antidepressant medication should not be offered to a child or young person with moderate to severe depression, except in combination with a concurrent psychological therapy (1.6.4.1).

Assumptions made

3.3.3 Clinicians have revealed that they rarely prescribe antidepressants to children younger than 11 years except in exceptional cases, and this is not expected to change. The majority of prescribing is for young people with moderate to severe depression, and this is expected to reduce from approximately 60% to 30%. The antidepressant drugs most commonly used are selective serotonin reuptake inhibitors (SSRIs) such as fluoxetine, sertraline or citalopram.

3.3.4 We have used a value of £182.83 as the annual cost of antidepressant treatment to calculate the current and future cost of treatment. This is based on health economic data in the guideline. This stated that an 18 month course of antidepressant drug treatment for children and young people is calculated at £309. This value does not take into account the estimate that 15% of children and young people do not comply with the full course of drug treatment. We have adjusted the value to reflect this, based on expert opinion.

3.3.5 It is expected that when the guideline is implemented there will be a reduction in the numbers of children and young people who are prescribed antidepressants. As a result, the costing model shows a net saving of £1,988,000 in the cost of antidepressant drugs, as shown in Table 6.

Table 6 Net cost of antidepressant medication for England

		Current		Proposed		Change	
	Unit Cost £	Activity	Cost £000s	Activity	Cost £000s	Activity	Cost £000s
Medication treatment	182.83	16,791	3,070	5,917	1,082	-10,874	-1,988

3.4 Training for mental healthcare professionals

Background

3.4.1 The guideline highlights training as an important issue in two main areas. Firstly, the need for healthcare professionals at tier 1 to be trained by professionals in tiers 2/3 in detection and assessment of children and young people at risk of depression. Secondly, the need for therapists who deliver psychological therapies to children to also be trained child and adolescent mental healthcare professionals. Ongoing training of tier 1 staff has been assessed as a recurrent cost, whereas the need to update the skills of therapists who deliver therapy is assumed to be non-recurrent.

Tier 1 training

3.4.2 A key recommendation is that healthcare professionals in primary care, schools and other relevant settings should be trained to detect symptoms of depression and to assess children and young people who may be at risk of depression (1.3.1.1).

3.4.3 It has been suggested that a rolling programme of training delivered on a monthly basis could ensure that professionals at tier 1 have access to training. Assuming that 3 hours of training is delivered monthly in each PCT, results in the estimated national cost of tiers 2/3 providing training to tiers 1/2 is £611,000; a cost of £2,000 for each PCT.

Tiers 2/3 non-recurrent training

3.4.4 The guideline recommends that therapists providing psychological therapies to children and young people should also be trained child and adolescent mental healthcare professionals (1.1.5.4). This means that there will be a need to train or upgrade the skills of current and new practising therapists. Current training capacity would need to be expanded to enable adequate training of therapists to meet guideline recommendations and service requirements. Generalist cognitive behaviour therapy training is available, but there are very few courses available in child-oriented therapies. Furthermore, there is no readily available training in group therapy work with children. The type, and hence cost of training, vary greatly depending on the type and level of training already obtained or required by practising therapists.

3.4.5 There is no detailed information about the precise categories and numbers of staff who are currently trained, what level of training they have, or the type and level of training they would need in order to comply with the guideline. Consequently, accurate calculations of training costs have been difficult.

3.4.6 A number of assumptions have been made about current and future working practice in order to calculate the level of current and future workforce required to meet the expected rise in activity levels. These are set out in Table 3 (section 2.4.3).

3.4.7 Based on these assumptions, it is estimated that currently 659 therapist WTE are involved in providing services to depressed children and young people. To implement the proposed therapy interventions, an estimated 493 additional staff will be required, bringing the numbers of therapists up to 1152 nationally. A simplified calculation for non-recurrent training costs has been done, on the assumption that 90% of existing therapists, and all additional therapists would need training, and that each additional WTE is an individual working full time. The training assumptions built into the costing model is that the maximum cost of training would be £3,000, the medium cost would be £1,500, and the minimum cost would be £300.

These figures represent an average postgraduate course taking up to a year and costing around £3,000, 2-week programmes that cost £1,500 per person, and 2- and 3-day training programmes for 20 staff costing £300 per person. A simple proportion is used of a third of therapists being trained at each level: the minimum, medium and maximum.

3.4.8 On the basis of these assumptions, the potential cost of upgrading the skills of existing therapists and training additional therapists for psychological interventions with children is £1,721,000. This is considered to be a non-recurrent cost, because the calculation of therapist cost per hour incorporates time for training and the time and cost of supervision.

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.

4.1.2 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 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.

4.1.4 A table detailing all variables modified is attached as Appendix E and the two elements that have greatest impact are discussed below.

4.2 Impact of sensitivity analysis on costs

Incidence of depression

4.2.1 We found that a variation in the estimate for incidence of depression will have a significant impact on the resulting calculation of total cost, because it has an effect on all elements of the model. The range of incidence was based on the full guideline and varied between 0.5% and 0.75% for children and between 2% and 4% for young people. Assuming that minimum or maximum for both ages occurs simultaneously results in net recurrent costs ranging from £13.4 million to £25.6 million; a range of £12.2 million.

Cases subject to the care pathway

4.2.2 The greatest change in net recurrent costs arises from the assumption of increased identification of depression. The value assumed for rate of increased identification of depression in 5 to 18 year olds is 35%, with variation modelled from 30% to 40%. This variation results in net recurrent costs ranging from £12.5 million to £26.4 million; a variance of £13.9 million. Should the numbers identified remain at 25% then the cost would £5.5 million, however, it is assumed that training will lead to better identification of children and young people with depression.

Proportion of patients subject to active psychological intervention

4.2.4 We found that the variation in the proportion of patients on the predicted care pathway for active psychological intervention had significant impact on the variation in total cost. The value assumed for 5-18 year olds subject to group CBT is 50%, with variation modelled from 40% to 60%. This results in total cost of group CBT ranging from £2.9 million to £4.4 million.

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 1 (section 2.2.3).

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 assumptions to reflect local practice and costs (available from www.nice.org.uk/CG028).

5.2 Total cost

5.2.1 Table 7 summarises the annual recurrent costs of implementing the recommendations in the guideline that we considered to have the most significant impact on resources. For the NHS in England this is considered to be £19.5 million recurrently per annum with a further £1.7 million non recurrent cost for training additional therapists as well as existing CAMHS staff.

Table 7 Annual recurrent net cost of fully implemented recommendations with significant resource impact for England

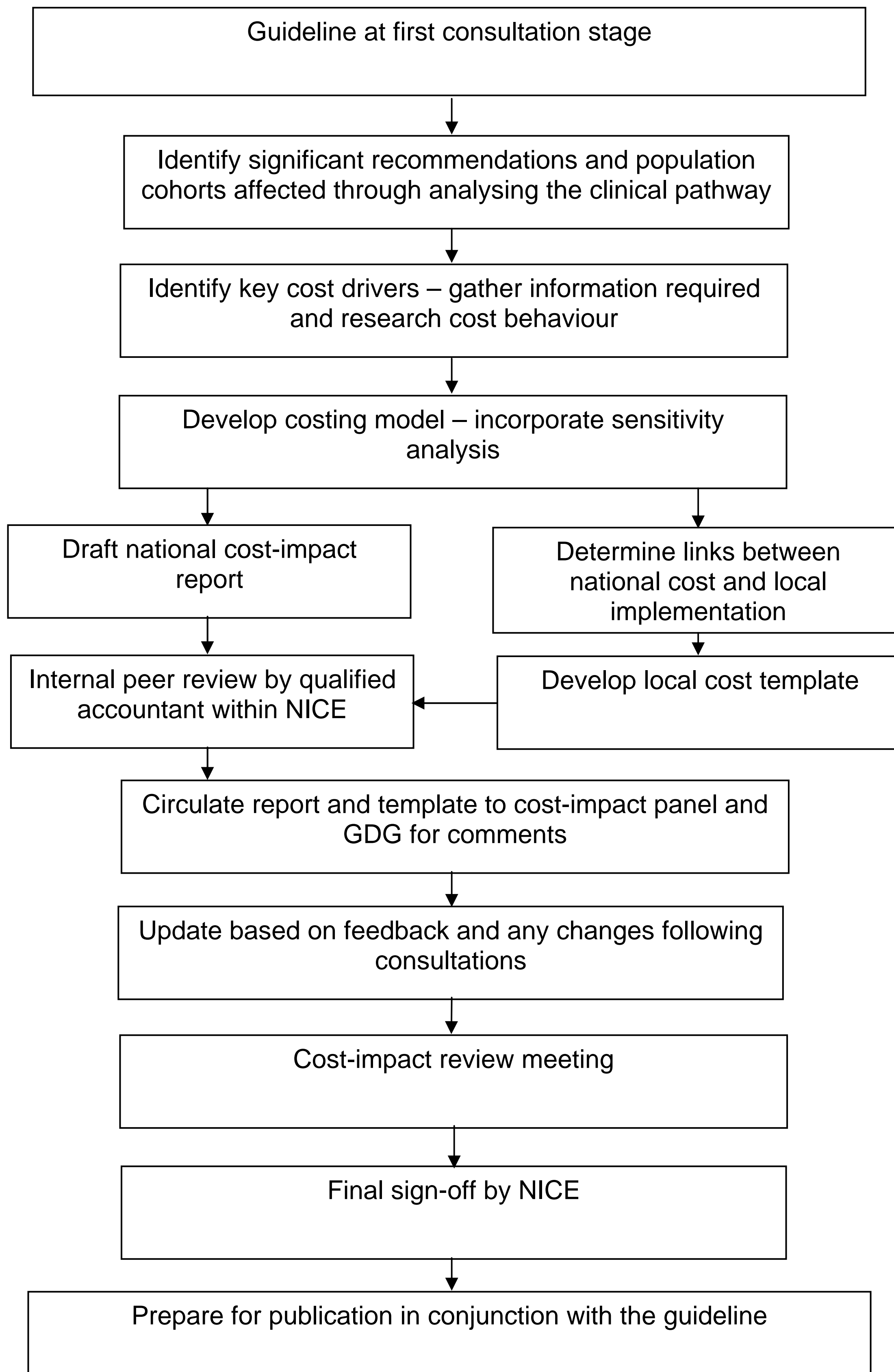
	Annual net cost £000s
Cost of additional watchful waiting appointments	964
Net cost of active psychological intervention	19,878
Savings from reduced medication prescribing	-1,988
Training of CAMHS tier 1 by CAMHS tier 2/3	611
Total	**19,466**

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 depression in children and young people. 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 on depression in children and young people.

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.

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, which is weighted using the York index of mental health need, the template will estimate the number of cases expected in the area.

Cost impact of the NICE guideline on depression in children and young people - England

Selection of local population

Population | Cost Assumptions | Cost Summary | Export | Info

NHS National Institute for Health and Clinical Excellence

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Close

Strategic health authority	Primary care trust	Weighted population aged 5-11	Weighted population aged 12-18	%	Selected population aged 5-11	Selected population aged 12-18
					-	-
Avon, Gloucestershire and Wiltshire	Bath and North East Somerset	12,116	12,366	0%	-	-
Avon, Gloucestershire and Wiltshire	Bristol North	20,209	20,626	0%	-	-
Avon, Gloucestershire and Wiltshire	Bristol South and West	17,541	17,902	0%	-	-
Avon, Gloucestershire and Wiltshire	Cheltenham and Tewkesbury	11,779	12,022	0%	-	-
Avon, Gloucestershire and Wiltshire	Cotswold and Vale	12,480	12,738	0%	-	-
Avon, Gloucestershire and Wiltshire	Kennet and North Wiltshire	12,564	12,823	0%	-	-
Avon, Gloucestershire and Wiltshire	North Somerset	13,296	13,570	0%	-	-
Avon, Gloucestershire and Wiltshire	South Gloucestershire	14,722	15,026	0%	-	-
Avon, Gloucestershire and Wiltshire	South Wiltshire	7,438	7,591	0%	-	-
Avon, Gloucestershire and Wiltshire	Swindon	20,642	21,068	0%	-	-
Avon, Gloucestershire and Wiltshire	West Gloucestershire	24,883	25,396	0%	-	-
Avon, Gloucestershire and Wiltshire	West Wiltshire	7,850	8,012	0%	-	-
Bedfordshire and Hertfordshire	Bedford	12,381	12,636	0%	-	-
Bedfordshire and Hertfordshire	Bedfordshire Heartlands	17,085	17,437	0%	-	-
Bedfordshire and Hertfordshire	Dacorum	9,734	9,935	0%	-	-
Bedfordshire and Hertfordshire	Hertsmere	6,242	6,370	0%	-	-
Bedfordshire and Hertfordshire	Luton	18,501	18,882	0%	-	-
Bedfordshire and Hertfordshire	North Hertfordshire and Stevenage	14,527	14,826	0%	-	-
Bedfordshire and Hertfordshire	Royston, Buntingford and Bishop's S	4,719	4,816	0%	-	-
Bedfordshire and Hertfordshire	South East Hertfordshire	12,088	12,338	0%	-	-
Bedfordshire and Hertfordshire	St Albans and Harpenden	8,152	8,320	0%	-	-
Bedfordshire and Hertfordshire	Watford and Three Rivers	13,462	13,740	0%	-	-
Bedfordshire and Hertfordshire	Welwyn Hatfield	8,688	8,867	0%	-	-
Birmingham and the Black Country	Dudley Beacon and Castle	11,119	11,348	0%	-	-
Birmingham and the Black Country	Dudley South	16,645	16,988	0%	-	-

CoverPage | How to use this document | STEP 1. Select Local Population | STEP 2. Cost Assumptions | STEP 3. Cost Sumr

Sheet two (part of which is shown below) allows users to alter the variables used in the national model to reflect local circumstances.

Cost impact of the NICE guideline on depression in children and young people - England

Costing assumptions

Population | Cost Assumptions | Cost Summary | Export | Info

NHS National Institute for Health and Clinical Excellence

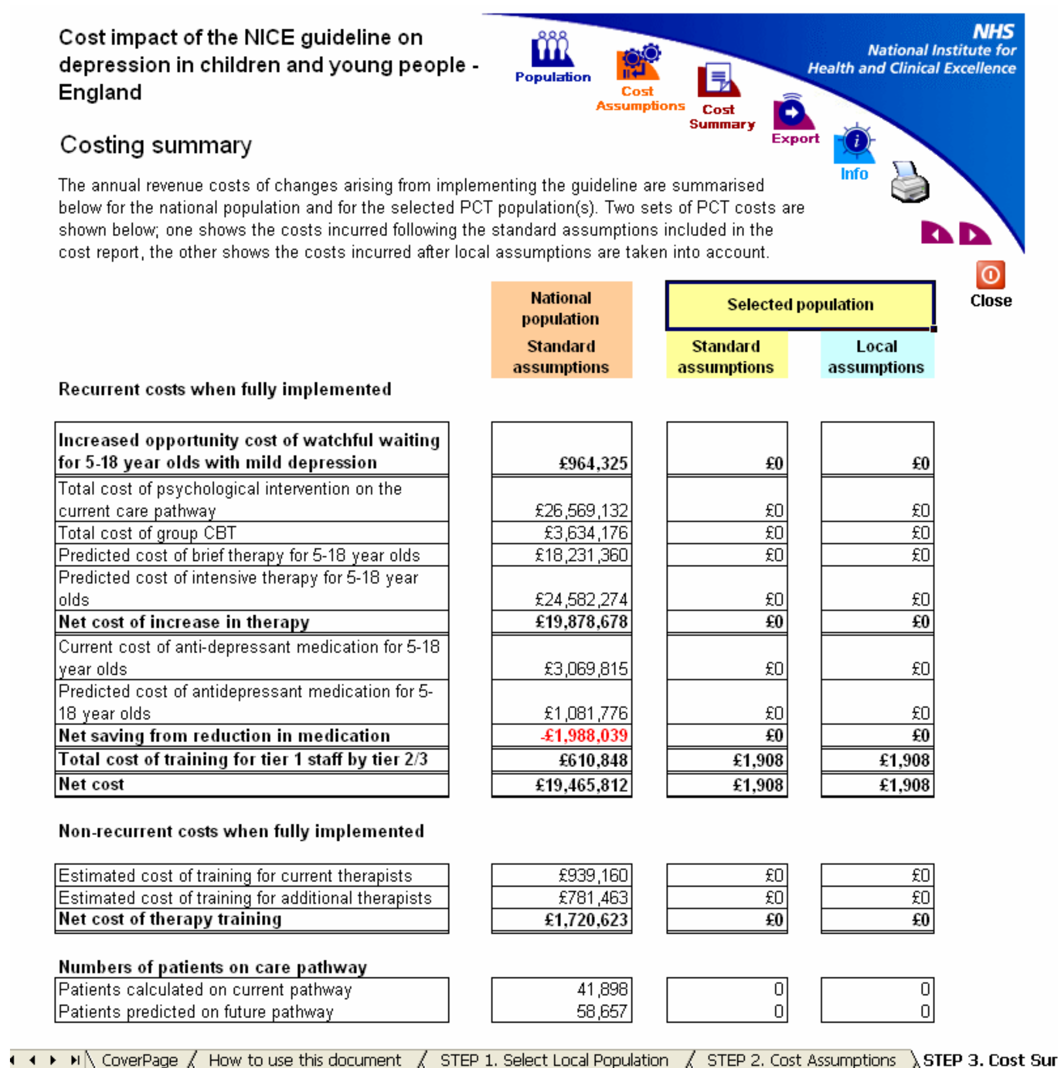
Make any necessary alterations to the costing assumptions (highlighted in blue) by clicking on the buttons on the right.
Click NEXT to go to the cost summary sheet.

Next | Close

	National population Standard assumptions	Selected population Standard assumptions	Selected population Local assumptions
Population of 5 - 11 year olds	4,539,445	0	0
Population of 12 - 18 year olds	4,633,007	0	0
Incidence of mild depression			
Incidence of mild depression in 5-11 year olds, %	0.54%	0.54%	0.54%
Numbers of 5-11 year olds with mild depression	24,513	0	0
Incidence of mild depression in 12-18 year olds, %	2.25%	2.25%	2.25%
Numbers of 12-18 year olds with mild depression	104,243	0	0
Incidence of moderate/severe depression			
Incidence in 5-11 year olds, %	0.09%	0.09%	0.09%
Numbers of 5-11 year olds with moderate/severe depression	4,086	0	0
Incidence in 12-18 year olds, %	0.75%	0.75%	0.75%
Numbers of 12-18 year olds with moderate/severe depression	34,748	-	0
Current number of cases detected and subject to current care pathway	25%	25%	25%
Numbers of 5-18 year olds with mild depression subject to current care pathway	32,189	-	0
Numbers of 5-18 year olds with moderate/severe depression subject to current care pathway	9,709	-	0
Predicted number of cases subject to proposed care pathway	35%	35%	35%
Predicted numbers of 5-18 year olds detected with mild depression and subject to care pathway	45,065	-	0
Predicted numbers of 5-18 year olds detected with moderate/severe depression and subject to care pathway	13,592	0	0

CoverPage / How to use this document / STEP 1. Select Local Population / **STEP 2. Cost Assumptions** / STEP 3. Cost Summa

Finally, a third sheet summarises the results for users, as shown below:


Cost impact of the NICE guideline on depression in children and young people - England

Costing summary

The annual revenue costs of changes arising from implementing the guideline are summarised below for the national population and for the selected PCT population(s). Two sets of PCT costs are shown below; one shows the costs incurred following the standard assumptions included in the cost report, the other shows the costs incurred after local assumptions are taken into account.

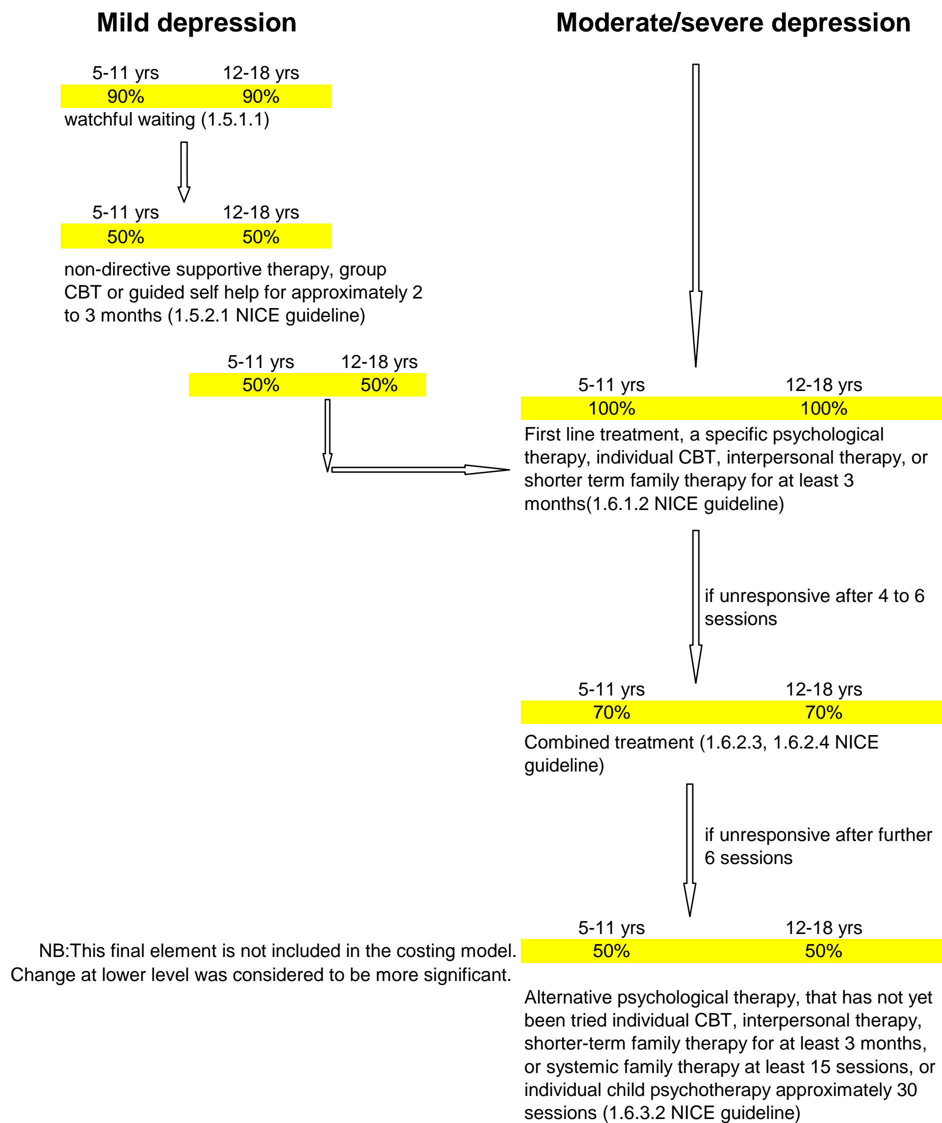
	National population	Selected population	
	Standard assumptions	Standard assumptions	Local assumptions
Recurrent costs when fully implemented			
Increased opportunity cost of watchful waiting for 5-18 year olds with mild depression	**£964,325**	**£0**	**£0**
Total cost of psychological intervention on the current care pathway	£26,569,132	£0	£0
Total cost of group CBT	£3,634,176	£0	£0
Predicted cost of brief therapy for 5-18 year olds	£18,231,360	£0	£0
Predicted cost of intensive therapy for 5-18 year olds	£24,582,274	£0	£0
Net cost of increase in therapy	**£19,878,678**	**£0**	**£0**
Current cost of anti-depressant medication for 5-18 year olds	£3,069,815	£0	£0
Predicted cost of antidepressant medication for 5-18 year olds	£1,081,776	£0	£0
Net saving from reduction in medication	**-£1,988,039**	**£0**	**£0**
Total cost of training for tier 1 staff by tier 2/3	**£610,848**	**£1,908**	**£1,908**
Net cost	**£19,465,812**	**£1,908**	**£1,908**
Non-recurrent costs when fully implemented			
Estimated cost of training for current therapists	£939,160	£0	£0
Estimated cost of training for additional therapists	£781,463	£0	£0
Net cost of therapy training	**£1,720,623**	**£0**	**£0**
Numbers of patients on care pathway			
Patients calculated on current pathway	41,898	0	0
Patients predicted on future pathway	58,657	0	0

Appendix C: Model of care assumptions

	Current practice	Following NICE guidance	Change in practice
Watchful waiting	5% Children 25% Young people	90% Children and young people	+ 85% Children + 65% Young people
Active psychological therapy	60% children and 11% young people following watchful waiting combined with 95% children and 75% young people referred directly receive intensive therapy. Then 49% of children and 50% of young people go onto additional therapy.	No direct comparisons possible because predicted therapy following the guideline is different to how it is estimated to currently be provided. Please refer to Appendix D for details of the predicted care pathway.	
Antidepressant medication	10% of children and 60% of young people	10% of children and 30% of young people	No change for children and 30% reduction for young people

Appendix D: Elements of predicted future care pathway

Guideline: Depression in children and young people
Elements of proposed care pathway requiring resources to change.



Appendix E: Results of sensitivity analysis

Parameter varied	Baseline Value	Minimum Value	Maximum Value	Baseline Cost £000s	Minimum Cost £000s	Maximum Cost £000s	Change £000s
Incidence of depression							
Incidence of depression in 5 to 11 year olds	0.63%	0.5%	0.75%				
Incidence of depression in 12 to 18 year olds	3%	2%	4%				
Incidence of depression in 5 to 18 year olds (combined effect)				19,466	13,429	25,640	12,211
Cases subject to the care pathway							
Rate of increased identification of cases of depression	35%	30%	40%	19,466	12,498	26,433	13,935
Predicted proportion of 5-18 years with mild depression subject to watchful waiting	90%	85%	95%	19,466	17,103	20,647	3,544
Predicted proportion of 5-18 years olds to receive group CBT following watchful waiting	50%	40%	60%	19,466	15,461	23,470	8,009
Predicted proportions of children receiving first line therapy (mild following Group CBT / moderate severe referred directly)	50% / 100%	40% / 90%	60% / 100%	19,466	13,437	22,743	9,306
Predicted proportion of children continuing to additional intensive therapy	70%	60%	80%	19,466	15,953	22,977	7,024
Cases to be prescribed anti-depressant drugs							
Predicted proportion of 5-11 year olds prescribed anti-depressant drugs	10%	5%	15%				
Predicted proportion of 12-18 year olds prescribed anti-depressant drugs	30%	20%	40%				
5-18 year olds prescribed anti-depressant drugs (combined effect)				1,082	712	1,451	739
Training for therapists							
Proportion of existing therapists requiring training	90%	85%	95%	939	887	991	104
Costs							
Variation in the average salaries used to calculate the unit cost of therapy	£56	£47	£67	19,466	16,174	23,496	7,322
Variation in the cost of medication for cases on future care pathway including review appointments	£182.83	£160.00	£200.00	19,466	19,714	19,279	- 435