

National Institute for Health and Clinical Excellence

Post-traumatic stress disorder (PTSD)

**The management of PTSD in adults and
children in primary and secondary care**

National cost-impact report

Implementing NICE Clinical Guideline no. 26

July 2005

Clinical Guideline 26

National cost-impact report to accompany 'Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care'

Issue date: July 2005

This report is an assessment of the costs of implementing the recommendations in 'Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care'.

The Institute's full guidance on PTSD is available from the NICE website (www.nice.org.uk/CG026NICEguideline).

An abridged version of the guidance (a 'quick reference guide') is also available from the NICE website (www.nice.org.uk/CG026quickrefguide). Printed copies of the quick reference guide can be obtained from the NHS Response Line: telephone 0870 1555 455 and quote reference number N0848.

Information for the public is available from the NICE website (www.nice.org.uk/CG026publicinfo) or from the NHS Response Line (quote reference number N0849 for a version in English and N0850 for a version in English and Welsh).

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.

It should be noted that 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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Contents

Executive summary	4
<i>Background</i>	4
<i>Costing methodology</i>	4
<i>Total cost impact</i>	5
<i>Implementation</i>	6
1 Background	8
1.1 <i>Context</i>	8
1.2 <i>Epidemiology of PTSD in adults and children</i>	9
1.3 <i>Models of care</i>	10
2 Costing methodology	11
2.1 <i>Process</i>	11
2.2 <i>Scope of the cost-impact analysis</i>	11
2.3 <i>General assumptions made</i>	13
2.4 <i>Basis of unit costs</i>	16
3 Cost of significant resource impact recommendations	17
3.1 <i>Watchful waiting for adults with mild symptoms</i>	17
3.2 <i>Psychological treatment for adults</i>	18
3.3 <i>Drug treatment for adults</i>	24
3.4 <i>Interventions for children and adolescents</i>	26
4 Sensitivity analysis	29
4.1 <i>Methodology</i>	29
4.2 <i>Impact of sensitivity analysis on costs</i>	29
4.3 <i>Phased implementation</i>	30
5 Conclusion	32
5.1 <i>Identification of key cost areas</i>	32
5.2 <i>Total cost</i>	32
5.3 <i>Summary</i>	33
Appendix A: Approach to costing guidelines	34
Appendix B: Accompanying local cost template	35
Appendix C: Model of care assumptions	37
Appendix D: Results of sensitivity analysis	38
Appendix E: References	39

Executive summary

Background

This report looks at the cost impact of implementing the NICE guideline 'Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care' 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 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. The following areas were identified in conjunction with the Guideline Development Group and key clinicians.

- Trauma-focused cognitive behavioural therapy (CBT) should be offered to those with severe symptoms or with severe PTSD in the first month after the traumatic event.

- Trauma-focused CBT should be offered to people who present with PTSD within 3 months of a traumatic event.
- Trauma-focused psychological treatment (trauma-focused CBT or eye movement desensitisation and reprocessing).should be offered to people who present with PTSD where symptoms have been present for more than 3 months after a trauma.
- Trauma-focused CBT should be offered to older children with severe symptoms or PTSD in the first month after the traumatic event.
- Children and young people with PTSD should be offered a course of trauma-focused CBT.
- Drug treatments should not be a routine first-line treatment for adults in preference to a trauma-focused psychological therapy.

Total cost impact

The annual net revenue impact arising from fully implementing the guideline is summarised in Table 1.

Table 1 Recurrent annual net cost of fully implemented recommendations with significant resource impact for England.

	£000s
Adult interventions	
Cost of undertaking additional watchful waiting appointments	500
Net cost of increase in therapy	33,338
Net saving from reduction in medication	-10,826
Child and adolescent interventions	
Net cost of increase in therapy	2,974
Total	25,988

It should be noted that a large number of assumptions based on clinical opinion were used to complete the costing model. The costs presented are estimates and should not be taken as the full cost of implementing the guideline.

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 150,000 (120,000 adults and 30,000 children) and a York Psychiatric Index¹ of 1 could expect to incur additional recurrent costs of about £77,000 annually.

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.

Access to therapy, workforce capacity, and access to training have been identified as potential barriers to implementation. In a recent survey 79% of general practitioners described waits for clinical psychology services of over 6 months, while 22% indicated that the wait was over 1 year. Clearly, for interventions of the kind recommended in the NICE guideline to be successfully implemented access will have to be improved. The cost report has suggested that an increase of 1,083 whole time equivalent (WTE) therapists will be required nationally to meet the increase in therapy activity. This amounts to an increase of 3.21 WTEs for a PCT with a population of 150,000.

It is suggested that current levels of training capacity will be insufficient to meet the increased demand for trained and competent clinicians given that it has been estimated that there are 420 annual places available on postgraduate courses in trauma-focused psychological treatment such as CBT. Potential training costs, based on a mixed provision of training that

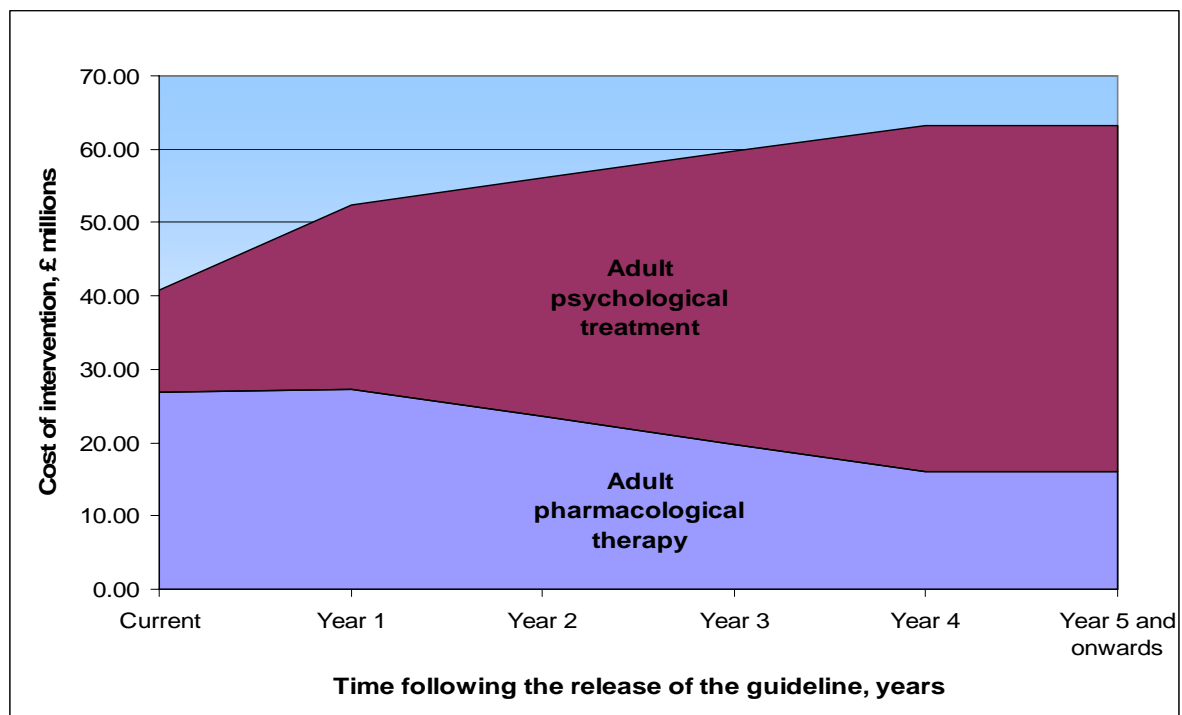
¹ The York Psychiatric Index is a measure of need related to deprivation indices. This index relates to resource allocation on a nationally applicable basis and is used in this manner by the NHS Executive.

includes short courses for experienced clinicians, have been estimated at values of around £1.71 million nationally and £5,000 for a PCT with a population of 150,000.

The three main trends that feature in the model are an increase in the number of individuals diagnosed with and treated for PTSD, an increase in the proportion of individuals receiving psychological treatment and a decrease in the proportion of individuals receiving medication. It will take time for the recognition and diagnosis of PTSD to increase and for the workforce capacity to be improved so that psychological treatment can be offered to a greater proportion of cases. In recognition of these realities the costs associated with the changes in treatment have been plotted for adult cases over a 4-year period.

A linear rate of change from current levels to target levels has been used for both the increases in the population receiving treatment and the changes in treatment. The rate of change and time taken to reach target levels are only examples used to demonstrate shifting costs for treatment.

Changes in cost of pharmacological and psychological interventions for adults diagnosed with and treated for PTSD following the release of the guideline over 4 years.



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 'Post-traumatic stress disorder (PTSD): the management of PTSD in adults and children in primary and secondary care' 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 PTSD and should be read in conjunction with it (see www.nice.org.uk/CG026).

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 PTSD in adults and children

1.2.1 Post-traumatic stress disorder (PTSD) develops following a stressful event or a situation of an exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress in almost anyone. Such events include acts of interpersonal violence, severe accidents, disaster or military actions.

1.2.2 The most characteristic symptoms of PTSD are re-experiencing symptoms. People with PTSD involuntarily re-experience aspects of the traumatic event in a very vivid and distressing way. In children, re-experiencing symptoms may take the form of re-enacting the experience, repetitive play or frightening dreams without recognisable content.

1.2.3 No large-scale surveys have been conducted to estimate the prevalence of PTSD in the English population. Estimates for the 12-month prevalence in adults taken from American and Australian surveys range between 1.3%² and 3.6 %³. A prevalence figure of 1.5% will be used in this cost report as it was felt to reflect current prevalence levels in the UK. A significant number of people who exhibit PTSD symptoms will recover without treatment within 6–12 months, although the exact rate of remission has been found to vary according to the specific trauma. Approximately one-third of individuals will remain symptomatic for 3 years or longer⁴, so 66% of all cases are therefore assumed to be acute cases.

1.2.4 Refugees and asylum seekers, by virtue of their experiences, such as war, imprisonment and torture, are more likely to experience PTSD than the general population. Estimates of the prevalence of PTSD among refugees and asylum seekers vary from 4% to 86%⁵. A relatively conservative estimate of 30% prevalence in this population has been assumed for the purposes of this model.

² Creamer et al. (2001)

³ Narrow et al. (2002)

⁴ Foa and Rothbaum (1998)

⁵ Hollifield et al. (2002)

1.2.5 Less information is available on the prevalence of PTSD among children and adolescents. Lifetime prevalence has been reported as being between 6%⁶ and 10%⁷ but these results were based on samples of older young people. The Office for National Statistics survey *The mental health of children and adolescents in Great Britain*⁸ interviewed a large sample of children and reported that 0.4% of children aged 11–15 years were diagnosed with PTSD. In the same survey PTSD barely registered in children below this age group.

1.3 Models of care

1.3.1 No reliable and recent data have been collected on the number of cases of PTSD being treated in the NHS or on the care being provided. The most recent adult psychiatric morbidity survey⁹ did not explicitly measure the prevalence of PTSD or investigate service use. It does, however, give estimates for the number of adults treated for any neurotic disorder and information on the types of psychological and drug treatment received by this group of adults in the preceding 12 months. Similarly, the survey *The mental health of children and adolescents in Great Britain*¹⁰ examined the types of NHS service contacted by children with mental disorders. These surveys were used as a starting point for the development of a generalised model of care.

1.3.2 In order to establish the model of care, we contacted practitioners from specialist trauma clinics and general psychological services around the country. Discussions with these practitioners re-enforced the fact that treatment varies considerably across the country.

1.3.3 Following these discussions, we created a simplified model of care based on psychological and pharmaceutical treatments. We made assumptions about how this model may change following the implementation of the guideline.

⁶ Giancona et al. (1995)

⁷ Kessler et al. (1995)

⁸ Meltzer et al. (2000)

⁹ Office for National Statistics (2000)

¹⁰ Meltzer et al. (2000)

2 Costing methodology

2.1 Process

- 2.1.1 We use a structured approach for costing guidelines (see Appendix A). Little information has been systematically collected about PTSD, and this led to problems in building a comprehensive bottom-up model for costing.
- 2.1.2 To overcome this limitation, we had to make assumptions in the costing model. We developed these assumptions and tested them for reasonableness with members of the Guideline Development Group (GDG) and key clinical practitioners in the NHS. Given the amount of variation in services the costing template has been created to 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 offers best practice advice on the care of adults and children who are suspected of having, or are diagnosed with, PTSD. The guideline does not apply to the following:
- people whose main problem is the ICD-10 diagnosis of 'enduring personality changes after catastrophic experience'
 - dissociative disorders that develop after traumatic events or adjustment disorders that develop after less severe stressors.
- 2.2.2 Therefore, these issues are also outside the scope of this assessment of the implementation costs.
- 2.2.3 We initially considered all the recommendations in the guideline. However, because of the breadth of the guideline, we worked with the GDG and other practitioners to identify the recommendations that would have the most significant impact on resources (see Table 2). Costing work has focused on these recommendations.

Table 2 Recommendations that have significant impact on resources.

Key areas	Recommendation number	Key priority?
Considering watchful waiting for those with mild symptoms that have been present for less than 4 weeks after the trauma	1.9.1.1	✓
Providing trauma-focused CBT to those with severe post-traumatic symptoms or severe PTSD in the first month after the traumatic event	1.9.1.4	✓
Providing trauma-focused CBT to people who present with PTSD within 3 months of a traumatic event	1.9.1.5	
Providing trauma-focused psychological treatment (trauma-focused cognitive behavioural therapy or eye movement desensitisation and reprocessing) to all patients where PTSD symptoms have been present for more than 3 months	1.9.2	✓
Not providing drug treatments as routine first-line treatment for adults in preference to a trauma-focused psychological therapy	1.9.3.1	✓
Providing trauma-focused CBT to older children with severe post-traumatic symptoms or PTSD in the first month after the traumatic event	1.9.5.1	✓
Offering trauma-focused CBT to children and young people with PTSD where symptoms have been present for more than 3 months after a trauma	1.9.5.2	✓

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

2.2.5 The guideline recommends that for individuals who have experienced a traumatic event, the systematic provision to that individual alone of brief, single-session interventions (often referred to as debriefing) that focus on the traumatic incident should not be routine practice (NICE guideline 1.9.1.3). The results of full implementation of this recommendation were examined to see if changes in practice may lead to a release of resources that could be diverted to other services. Some NHS services were found to provide single-session debriefing but it was noted that a large proportion of debriefing sessions are provided by non-statutory or

voluntary services or are purchased by private companies to support staff following traumatic incidents such as bank robberies.

2.2.6 The guideline also recommends that health and social care workers should offer practical, social and emotional support to anyone involved in a traumatic incident (NICE guideline recommendation 1.9.1.2). This suggests that some staff time will be required following a traumatic event that may be equivalent to the time currently spent offering single-session debriefing to individuals. Also, the guideline does not preclude the provision of group debriefing. When these factors are considered we concluded that, while representing an important evidence-based change in practice, the recommendation relating to debriefing did not represent a significant national cost impact. NHS organisations may want to consider how this recommendation affects local service delivery when considering the impact of the guideline as a whole.

2.2.7 We have limited the consideration of costs to direct costs to the NHS that will arise from implementation. We have not included costs to the individual, the private sector or the not-for-profit sector. Where applicable, any 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 3).

Table 3 Annual incidence of post-traumatic stress disorder.

Population group	Total population (100,000s)	Annual incidence of PTSD in population (%)	Annual cases of PTSD in population
Adults (aged 16 and above)	406.88	1.5	610,323
Children and adolescents (aged 15 and below)	101.63	0.4	40,650
Refugees and asylum seekers	1.9	30	57,000

2.3.2 One of the key assumptions is that not all patients included in the incidence figures will be subject to diagnosis and treatment. The adult psychiatric morbidity survey suggests that the percentage of the adult population who seek and are given treatment by the NHS for any type of neurotic disorder is 24%¹¹. We assume that the same proportion of adults with PTSD will seek and be given treatment, and that consequently there are about 158,000 adults currently being treated for PTSD in England.

2.3.3 The adult psychiatric morbidity survey found that 15% of all people surveyed had received only medication, 4% had received only counselling or therapy and 5% had received both medication and counselling or therapy. This means that 83.3% of those people with any neurotic disorder who received some sort of care had taken medication and 37.5% had received therapy or counselling. These figures will be used to calculate the cost of current adult interventions.

2.3.4 One of the recommendations in the guideline is that practitioner recognition of the signs and symptoms of PTSD and diagnosis should increase. Implementation events such PTSD conferences and workshops and the dissemination of implementation tools will also raise the profile of PTSD and should facilitate increased presentation and diagnosis.

2.3.5 Following implementation of the guideline we assume that the number of patients subject to treatment for PTSD will increase due to the improvements in recognition and diagnosis. Based on discussions with

¹¹ Office for National Statistics (2000)

clinicians, we assume a 10% increase in the percentage of adults who seek treatment and who are diagnosed. The percentage of adults with PTSD who will receive treatment following diagnosis in the future will increase from 24% to 34%, and consequently approximately 66,700 more people will enter the care pathway. This is a general assumption that affects all elements of the adult model.

2.3.6 Similarly for children it is assumed that only 20% of all cases are currently on the current care pathway. This means that there are about 8,100 children and adolescents currently being treated for PTSD in England. Based on discussions with clinicians, we assume that the number will increase from 20% to 30% following implementation of the guideline. Consequently approximately 4,000 more children and adolescents will be diagnosed and treated. This is a general assumption that affects all elements of the child and adolescent model.

2.3.7 A number of general assumptions have been made about drop-out rates and engagement rates based on a review of the literature and discussion with clinicians. These assumptions have been applied to both the current and future care pathways and are listed in Table 4.

Table 4 General assumptions.

Assumption	Value
Percentage of adults whose preference is to engage with psychotherapy	70%
Percentage of adults who engage with therapy but drop out before the end of a complete course of therapy	30%
Percentage of a complete course of therapy attended by patients who drop out	25%
Percentage of adults who receive medication but who do not complete a full course	30%
Percentage of a complete course of medication taken by non-compliant patients	25%

2.3.8 Assumptions made when estimating 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 national tariff will be applied to all activity for which Healthcare Resource Groups (HRGs) or other appropriate case-mix measures are available. The guideline recommends the use of trauma-focused therapies such as cognitive behavioural therapy (CBT) or eye movement desensitisation and reprocessing (EMDR), and that these therapies are to be provided on an outpatient basis. These therapies fall outside current HRGs and have not been assigned a national tariff.

2.4.2 It has been assumed that a trained counsellor, community mental health nurse or clinical psychologist could offer the kind of trauma-focused therapy being recommended. It is recognised that these services are provided by statutory, non-statutory and voluntary organisations; however, cost calculations have been based on delivery by NHS staff. It has also been assumed that therapy is being delivered by these healthcare professionals in equal proportions.

2.4.3 The unit cost of psychological therapy has therefore been calculated using midpoint Agenda for Change salaries from bands 5, 6 and 7. When on-costs are included these salaries are found to be £25,582, £31,686 and £37,936 respectively. It has been assumed that 4 hours of supervision will be required per month for all professionals, and that the cost of supervision is £45 per hour.

2.4.4 A review of the literature and of sources such as *Unit Costs of Health and Social Care 2004*¹² suggested that the percentage of time spent on face-to-face patient contact varied by profession from 40% to 80% (mean 63.3; median 63.5). A value of 60% has been assumed for the percentage of time spent with patients which equates to 4.5 hours per day.

¹² Personal Social Services Research Unit (2004)

Table 5 Assumptions used when calculating the unit cost of therapy and considering capacity issues.

Assumption	Value
Working weeks per year, weeks	40
Working week, hours	37.5
Percentage of time spent with patients	60%
Hours per week spent with patients, hours	22.5
Hours per year spent with patients, hours	900

2.4.5 Using the assumptions listed in Table 5 the cost of 1 hour of therapy is £37.28. It should be noted that this figure only includes staff costs. Other indirect costs such as accommodation may need to be increased in light of increasing staff numbers.

3 Cost of significant resource impact recommendations

3.1 Watchful waiting for adults with mild symptoms

Background

3.1.1 Where symptoms are mild and have been present for less than 4 weeks after the trauma, watchful waiting should be considered. A follow-up appointment should be made within 1 month (NICE guideline recommendation 1.9.1.1).

Assumptions made

3.1.2 We estimated that 5% of the patients on the care pathway are currently managed with watchful waiting; this is 8,008 appointments a year.

3.1.3 Clinical opinion suggests that approximately 30% of all cases will exhibit mild symptoms in the first month following the trauma. It is unrealistic to expect that all these cases would return for a watchful waiting follow-up appointment if such an appointment was offered. A return rate of 55% is assumed, meaning that 16.5% of all cases on the future care pathway would be offered and return for such an

appointment. This amounts to 37,437 cases. It is assumed that 15% of the people managed with watchful waiting will remit and therefore not require further intervention. This figure is used in Section 3.2.10..

3.1.4 A 10-minute GP appointment has been calculated as costing £17 in the reference source *Unit Costs of Health and Social Care 2004*.

Cost summary

3.1.5 The net opportunity cost of management by watchful waiting for mild cases presenting within 4 weeks of trauma is summarised in Table 6.

Table 6 Annual net cost of increased watchful waiting for England.

	Unit Cost £	Current		Proposed		Change	
		Activity	Cost £000s	Activity	Cost £000s	Activity	Cost £000s
Watchful waiting	17	8,008	136	37,437	636	29,429	500

3.2 Psychological treatment for adults

Background

3.2.1 A significant proportion of adults with PTSD will recover with no or limited interventions. However, without effective treatment many people may develop chronic problems over many years. The guideline therefore recommends a number of early interventions for adults with post-traumatic symptoms or a diagnosis of PTSD. The guideline found good evidence for the effectiveness of trauma-focused psychological treatment such as cognitive behavioural therapy (CBT) or eye movement desensitisation and reprocessing (EMDR).

3.2.2 The guideline recommends that trauma-focused cognitive behavioural therapy should be offered to those with severe post-traumatic symptoms or with severe PTSD in the first month following a trauma (NICE guideline recommendation 1.9.1.4) and suggests that 5 sessions may be sufficient if treatment starts at this time (recommendation 1.9.1.6).

Therefore it is felt that early treatment will reduce the overall cost of treatment.

- 3.2.3 The guideline also recommends that trauma-focused cognitive behavioural therapy should be offered to those who present with PTSD within 3 months of a traumatic event (NICE guideline recommendation 1.9.1.5). Treatment should normally consist of 8 to 12 sessions. .
- 3.2.4 In the case of adults who have symptoms that have been present for more than 3 months after a trauma, the guideline recommends that a course of trauma-focused psychological treatment, such as trauma focused cognitive behavioural therapy or eye movement desensitisation and reprocessing, should be offered (NICE guideline recommendation 1.9.2.1).
- 3.2.5 For all adult psychological interventions offered the guideline suggests that longer therapy sessions of up to 90 minutes will be necessary when the trauma itself is discussed (NICE guideline recommendations 1.9.1.6 and 1.9.2.3).

Assumptions made

- 3.2.6 The psychiatric morbidity study found that 37.5% of the patients with a neurotic condition who were receiving treatment had received psychological therapy in the 12 months preceding the survey, either as the sole treatment or in combination with medication. It was assumed that the same proportion of adults on the current care pathway have received similar therapy; this is about 60,060 patients a year. The precise mode of therapy being offered is assumed to be a mixture of psychotherapy, cognitive behavioural therapy and counselling. It is assumed that this therapy is being delivered by counsellors, community mental health nurses and clinical psychologists in equal proportions.
- 3.2.7 From a brief survey of counselling, psychotherapy and clinical psychology services and mental health commissioners it is suggested that a complete course of therapy consists of a maximum of 10 1-hour

sessions. A drop-out rate of 30% is assumed, with most attrition occurring early in the course of treatment. It is assumed that individuals dropping out will attend a quarter of the sessions offered. When these drop-outs are accounted for the average course of therapy consists of 6.2 sessions.

3.2.8 Of the 226,890 adults on the future care pathway it is assumed that 30% would prefer not to engage with psychological therapy as a first line of treatment. This means that about 158,800 will receive some form of psychological therapy. To calculate the future cost of such treatment three separate courses of therapy have been identified based on the recommendations. The courses are as follows:

- 5 sessions of therapy starting within 1 month for acute and severe cases
- 8–12 sessions for all other cases
- 5 additional sessions for those cases from the previous two courses that require additional sessions.

3.2.9 Acute cases are assumed to account for 66% of all cases in a year. Clinical opinion suggests that approximately 20% of all acute cases will exhibit severe symptoms in the first month following the trauma. This amounts to 9.2% of all cases or about 21,000 cases. These acute and severe cases will be given 5 90-minute sessions. When weighted to account for drop-outs the average number of sessions attended will be 4.1.

3.2.10 We assume that 15% of adult cases will naturally remit after the traumatic event before seeking treatment. When we also account for those already offered 5 sessions and those who have remitted following watchful waiting, approximately 43.29% of all cases will be offered 8–12 sessions which will be on average 75 minutes long. An average session length has been used due to the fact that some 90-minute sessions will be used when the traumatic event is discussed, while other sessions will only last for 60 minutes.. In addition 33% of acute and severe cases will

require more therapy and will join this course of treatment. This means that about 105,128 adults will receive this course of therapy. When weighted to account for drop-outs the average number of sessions attended by these adults is 7.9.

3.2.11 Finally, it was assumed that approximately one-third of the cases that complete the 8–12 sessions, 20,716 adults, will require up to 5 additional 60-minute sessions. The distribution of adults whose preference is to initially engage with psychological treatments is shown in Table 7.

Table 7 Summary of psychological treatments offered in future care pathway.

Patient characteristics	Trauma focused-treatment offered (adjusted for drop-outs)	Percentage of all cases on future pathway	Number of cases on future pathway			
70% 158,823						
Watchful waiting cases that remit and do not require additional management		2.48%	3,931			
Other remission before treatment		15.00%	34,034			
Acute and severe at 1 month	5 (4.1) sessions	9.24%	20,965			
Not acute and severe, and without remission after 1 month	8–12 (7.9) sessions	43.29%	98,209	Additional cases	2.13%	4,843
				Total cases		103,052
Requiring further treatment	5 (4.1) sessions				10.49%	23,805

(70% complete course, of whom 33% require more therapy)

(70% complete course, of whom 33% require more therapy)

Cost summary

3.2.12 The net cost of recommended psychological interventions is summarised in Table 8.

Table 8 Annual net cost of psychological interventions for England.

	Cost of course of therapy £	Current		Proposed		Change	
		Number of cases	Cost £000s	Number of cases	Cost £000s	Number of cases	Cost £000s
Current psychological treatment	231.14	60,060	13,882				
5 sessions for acute and severe cases	229.27			20,965	4,807		
8–12 sessions for others	368.14			105,128	38,702		
5 additional sessions as required	233.00			24,285	3,712		
Totals		60,060	13,882	150,378	47,220	90,318	33,338

Other considerations

3.2.13 In a recent survey 79% of general practitioners described waits for clinical psychology services of over 6 months, while 22% indicated that the wait was over 1 year¹³. The same survey also suggested that GPs would often refrain from referring to psychological services due to long waits even when this was recognised as being the most effective treatment. Clearly, for early interventions of the kind recommended in the NICE guideline to be successfully implemented access will have to be improved.

3.2.14 As the recommendations lead to an increase in activity, it is sensible to consider the impact in terms of workforce levels and training capacity. In order to calculate the level of current and future workforce required to

¹³ Munro et al. (2004)

meet the assumed level of activity, a number of assumptions about working practices have been made. These are listed above in Table 5.

3.2.15 Using these assumptions the staffing capacity required to meet current demands for adult psychological services amounts to 413 whole time equivalents (WTEs). Future demand for psychological services will require 1,407 WTE staff members. For a PCT with an adult population of 120,000 this equates to a change from 1.2 WTE to 4.1 WTE. This is a considerable increase in the number of personnel working in this area.

3.2.16 Training capacity may also be insufficient to cope with the increased demand for trained and competent clinicians. It has been estimated that there are 420 annual places available on postgraduate courses in trauma-focused psychological treatment such as cognitive behavioural therapy. Current training capacity would need to be expanded in order to produce sufficiently trained and competent clinicians in a timely manner.

3.2.17 The average postgraduate course costs are around £3,000 and most take up to a year to complete with weekly training and supervisory commitments. It may be preferable to develop a stepped approach to training by offering a selection of courses that vary in terms of cost, duration, student capacity and depth of training. Shorter courses on trauma-focused psychological therapy could be commissioned from education providers and offered to groups of clinicians who already have experience of working with cognitive models of therapy. This would substantially reduce the cost per person trained. Examples have been found of 2- and 3-day training programmes for 20 staff that cost £300 per person and 2-week programmes that cost £1,500 per person. Longer, more expensive courses could be offered to clinicians with less experience.

3.2.18 Uncertainty about the precise number of individual staff represented by the 993 new WTEs, the proportion of untrained staff and the types of training required to ensure these therapists are competent makes it extremely difficult to calculate the training costs arising from the increase

in workforce. However a simplistic calculation for non-recurrent training costs will be made. The calculation of training costs assumes that each additional WTE is an individual working full time, and that equal proportions of this new workforce are trained using the three training options listed above. Using this information the potential cost of training additional therapists for adult interventions is £1.57 million.

3.3 Drug treatment for adults

Background

3.3.1 The guideline recommends that drug treatments should not be used as a routine first-line treatment for adults in preference to a trauma-focused psychological therapy (NICE guideline recommendation 1.9.3.1). Drug treatments should be considered for adults with PTSD who express a preference not to engage in psychological treatment.

3.3.2 When an adult with PTSD has responded to drug treatment, it should be continued for at least 12 months before gradual withdrawal (NICE guideline recommendation 1.9.3.8).

Assumptions made

3.3.3 The psychiatric morbidity study found that 83% of the patients with a neurotic condition who were receiving treatment had received medication in the 12 months preceding the survey, either as the sole treatment or in combination with psychological therapy. It was assumed that a similar proportion of adults on the current care pathway have received similar pharmacological therapy; this is more than 132,000 patients a year.

3.3.4 It is assumed that the medication prescribed to these patients includes antidepressants such as selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs) and tricyclic antidepressants (TCAs). Data from the Prescription Pricing Authority on prescribing trends for SSRIs and related antidepressants between 1999 and 2003 suggests that the average price of a monthly prescription for these classes of drugs is £13.62. The total monthly cost of providing medication, including

initial prescribing appointment and review appointments, has been calculated as £24.08.

3.3.5 It is assumed that a complete course of antidepressants will last 12 months but that non-compliance will be high; 60% of patients prescribed are assumed to be compliant, with non-compliant patients receiving a 3-month course of medication. When these drop-outs are accounted for the average course of medication includes 8.4 monthly prescriptions. The average course of medication therefore costs £202.27.

3.3.6 Following the recommendation that medication should not be used as a routine first-line treatment for adults the model assumes a reduction in the number of adults on the future pathway who will be prescribed antidepressants. It is assumed that the 30% of people whose preference was not to engage with psychological therapy will be prescribed medication. It is also assumed that in 5% of cases, therapy will need to be augmented with medication. This group includes those adults for whom therapy is not working or those who have only achieved a partial improvement from therapy alone. This means that approximately 79,400 adults will be prescribed medication under the new care pathway.

Cost summary

3.3.7 The net cost of drug treatments for adults is summarised in Table 9.

Table 9 Annual net cost of drug treatments for adult interventions for England.

	Unit cost £	Current		Proposed		Change	
		Activity	Cost £000s	Activity	Cost £000s	Activity	Cost £000s
Antidepressants	£202.27	132,931	26,888	79,412	16,063	-53,520	-10,826

3.4 Interventions for children and adolescents

Background

3.4.1 Although it is difficult to identify PTSD in children and treatments are less well developed, there is emerging evidence indicating that trauma-focused cognitive behavioural therapy (CBT) is an effective intervention.

3.4.2 The guideline recommends that trauma-focused CBT should be offered to older children with severe PTSD symptoms or with severe PTSD in the first month after the traumatic event (NICE guideline recommendation 1.9.5.1).

3.4.3 The guideline also recommends that trauma-focused CBT should be offered to children and young people with PTSD including those who have suffered sexual abuse where symptoms have been present for more than 3 months after a trauma (NICE guideline recommendation 1.9.5.2). It is recommended that this therapy should be adapted to suit their age, circumstances and development. Treatment should normally consist of 8 to 12 sessions and longer sessions should be offered (90 minutes) when the trauma itself is discussed (recommendation 1.9.5.3).

3.4.4 The guideline states that drug treatments should not be routinely prescribed for children and young adults with PTSD (NICE guideline recommendation 1.9.5.4). The financial implications of this recommendation were not thought to be significant and have not been included in the model.

Assumptions made

3.4.5 It has been assumed that 35% of the children and adolescents with PTSD currently receive psychological therapy; this is just over 2,800 cases a year.

3.4.6 Two future courses of therapy have been identified based on the recommendations:

- 8 sessions of therapy for older children with severe post-traumatic symptoms or severe PTSD at 1 month
- 8–12 sessions for all other cases.

3.4.7 Older children (aged 10–15) account for 35% of the national population of children and adolescents. It is assumed that 20% of all cases will be acute and severe. Consequently 854 older children will receive an average of 6.2 90-minute sessions.

3.4.8 When account has been taken of the 15% of cases that will naturally remit between 1 and 3 months after the traumatic event and of those already offered 8 sessions, approximately 72% of all cases will be offered 8–12 75-minute sessions. In addition 33% of acute and severe cases will require more therapy and will receive this 8–12-session course. This means that about 8,780 children and adolescents will receive this course of therapy. When weighted to account for drop-outs the average number of sessions attended by these children and adolescents is 7.9.

3.4.9 As the National Child and Adolescent Mental Health Service Mapping Exercise¹⁴ shows, children and adolescents will contact an extremely broad range of services and professionals. However, for the purposes of this costing exercise it is assumed that treatment for PTSD is being delivered principally by social workers, counsellors, community mental health nurses and clinical psychologists in equal proportions. This does not affect the hourly cost of patient contact.

Cost summary

3.4.10 The net cost of interventions for children and adolescents is summarised in Table 10.

¹⁴ <http://www.dur.ac.uk/service.mapping/CAMH/index.php?queryID=RS12>

Table 10 Annual net cost of interventions for children and adolescents for England.

	Cost of weighted course of therapy £	Current		Proposed		Change	
		Number of cases	Cost £000s	Number of cases	Cost £000s	Number of cases	Cost £000s
Current psychological treatment	231.14	2,846	658				
Therapy at 1 month for severe cases in older children	346.70			854	296		
8–12 sessions for all other cases	368.14			9,063	3336		
Total		2,846	658	9,916	3,632	7,070	2,974

Other considerations

3.4.11 Similar concerns about available capacity have been expressed for children’s psychological services as outlined in Section 2.1. In many ways the capacity issues are more complex for children’s services as these services are far less developed and there are fewer clinicians available to provide supervision for trainees.

3.4.12 Using similar assumptions to those listed in Table 6 the required increase in capacity resulting from the implementation of these recommendations was calculated.

3.4.13 Current demand for child and adolescent psychological services amounts to about 20 whole time equivalent (WTE) staff. Future demand for psychological services amounts to about 89 WTE staff.

3.4.14 Similar training issues are assumed for the new staff working with children and young adolescents as those noted in Sections 2.2.14 – 2.2.16. Using this information the potential cost of training additional therapists for child and adolescent psychological interventions is over £140,000.

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 D and the key conclusions drawn are discussed below.

4.2 Impact of sensitivity analysis on costs

Variation in the prevalence data for adults

4.2.1 Estimates for the 12-month PTSD prevalence in adults taken from American and Australian surveys range between 1.3%¹⁵ and 3.6 %¹⁶. The value assumed in the model is 1.5% as this value was felt to better represent current levels of need in England. When these values are used in the costing model, the number of adults with PTSD in the UK is found to vary from 586,000 to 1,521,000.

4.2.2 Using these values in the costing model the total cost of implementing the guideline is found to vary between £23.1 million and £55.5 million.

¹⁵ Creamer et al. (2001)

¹⁶ Narrow et al. (2002)

Variation in the numbers of patients on the future care pathway

4.2.3 We assume a 10% increase in the percentage of adults who seek and are given treatment. If the range of the increase varies between 0% (no increase in patients treated) and 20%, the percentage of adults on the future care pathway will vary between 24% and 44%.

4.2.4 Using these values in the costing model the total cost of implementing the guideline is found to vary between £7.2 million and £44.8 million.

Variation in percentage of time spent in consultation with patients and the effect on the unit cost of therapy

4.2.5 The unit cost of therapy has been calculated assuming that therapy is being delivered by counsellors, community mental health nurses and clinical psychologists in equal proportions. A review of the literature and of sources such as *Unit Costs of Health and Social Care 2004* suggested that the percentage of time spent on face-to-face patient contact varied from 40% to 80% depending on the profession.

4.2.6 When these variables are added to the unit cost calculation, the hourly cost of therapy is found to vary from £55.93 with 40% contact time to £27.96 with 80% contact time. When these cost units are added to the costing model for both adult and child psychological interventions the total cost of implementing the guideline is found to vary between £16.9 million and £44.2 million.

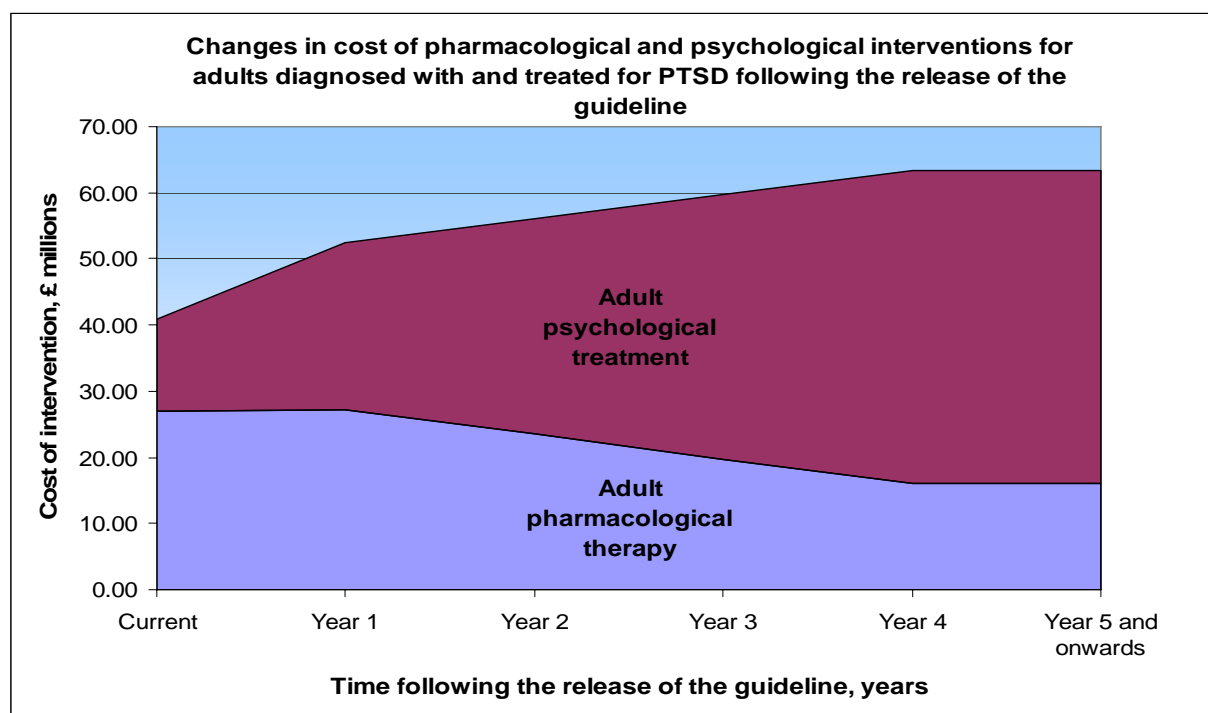
4.3 Phased implementation

4.3.1 The three main trends that feature in the model are an increase in the number of individuals diagnosed with and treated for PTSD, an increase in the proportion of individuals receiving psychological treatment, and a decrease in the proportion of individuals receiving medication. It will take time for the recognition and diagnosis of PTSD to increase and for the workforce capacity to be improved so that psychological treatment can be offered to a greater proportion of cases. In recognition of these realities the costs associated with the changes in treatment have been plotted for adult cases over a 4-year period.

4.3.2 A linear rate of change from current levels to target levels has been used for both the increases in the population receiving treatment and the changes in treatment. The rate of change and time taken to reach target levels are only examples used to demonstrate shifting costs for treatment. The results are shown in Table 11 and the graph below.

Table 11 Changes in population and cost of psychological and pharmacological treatments over time.

Adults	Current	Year 1	Year 2	Year 3	Year 4	Year 5
Percentage of adults diagnosed and treated for PTSD	24.00%	26.50%	29.00%	31.50%	34.00%	34.00%
Total population treated	160,158	176,841	193,524	210,207	226,890	226,890
Pharmacological therapy						
Percentage of total population treated	83%	59.375%	51.25%	43%	35%	35%
Population on medication	132,931	134,716	116,281	97,846	79,412	79,412
Total cost of medication, £ millions	26.89	27.25	23.52	19.79	16.06	16.06
Psychological treatment						
Percentage receiving psychological treatment	37.50%	45.625%	53.750%	61.875%	70.00%	70.00%
Population receiving psychological treatment	60,059	80,684	104,020	130,066	158,823	158,823
Cost of treatment, £ millions	13.90	19.60	27.80	37.00	47.20	47.20



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 2.

5.1.2 It should be stressed that 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 (www.nice.org.uk/CG026).

5.2 Total cost

5.2.1 Table 12 summarises the revenue costs of implementing the recommendations in the guideline that we considered to have the most significant impact on resources.

Table 12 Recurrent annual net cost of fully implemented recommendations with significant resource impact for England.

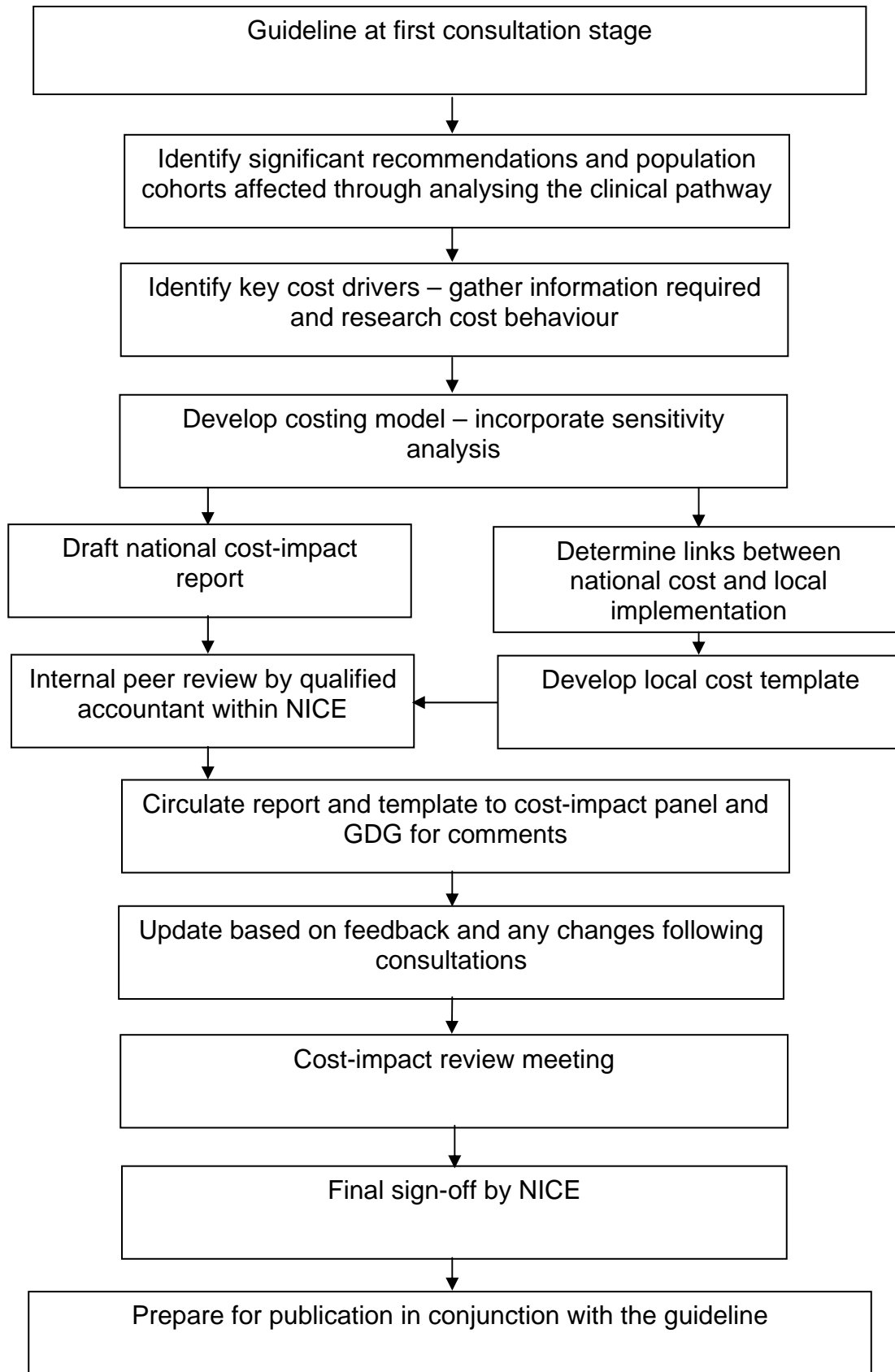
	£000s
Adult interventions	
Cost of undertaking additional watchful waiting follow-up appointments	500
Net cost of increase in therapy	33,338
Net saving from reduction in medication	-10,826
Child and adolescent interventions	
Net cost of increase in therapy	2,974
Total	25,988

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 PTSD. We produced it by developing a model based on expert opinion and on the detailed data that are available and have been validated by other experts on PTSD.

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 template calculates cost based on prevalence of PTSD for the general population and for refugee populations. Local circumstances may require PCTs to add other high-risk groups to the cost assessment model, such as ex-military personnel or migrant workers.

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

The template provides the option to update unit costs to reflect local costs and it is suggested that the local tariff or cost unit 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, deprivation weighting and prevalence, the template will estimate the number of cases expected in the area.

Microsoft Excel - cg026CostTemplate_englandb.xls

EN English (United Kingdom)

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4 **Cost impact of NICE guideline on the management of Post Traumatic Stress Disorder - England**

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7 **Costing populations**

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9 This template is used to calculate the cost impact of the management of violence and disturbed behaviour NICE guideline for designated populations; these can be either single or aggregated PCT areas or a user-defined population. When using the template please refer to the cost impact report for clarification on any assumptions.

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11 **1. Select the appropriate PCT area from the drop down box below.**

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13 PCT area

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PCT Name	Model value	User defined
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Child and adolescent population (0-15)	37,058	45,000
Adult Population (16>)	180,258	180,258
York index	0.84	0.84
Weighted child and adolescent population	31,129	37,800
Weighted adult population	151,417	151417

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24 **2. Edit the population and deprivation values by clicking the button on the right.**

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28 **3. Add the user-defined values to the population chart below by clicking the button on the right.**

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Ready

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

Microsoft Excel - cg026CostTemplate_englandb.xls

EN English (United Kingdom)

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4 **Cost impact of NICE guideline on the management of Post Traumatic Stress Disorder**

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7 **Costing assumptions**

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10 **5. Make any necessary alterations to the costing assumptions (highlighted in blue) by clicking on the buttons on the right.**

11 **6. Click NEXT to go to recurrent costing assumptions sheet.**

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	National population Standard assumptions	Selected population	
		Standard assumptions	Local assumptions
Adult prevalence			
Total adult population (16 and above), 100,000s	401.65	1.51	1.51
12-month prevalence of PTSD in adults, (per 100,000)	1,300	1,300	1,300
Population of refugees, 100,000s	1.9	0.007	0.007
12-month prevalence of PTSD in refugee populations, (per 100,000)	25,000	2,500	2,500
Total adult cases of PTSD	569,651	1,966	1,966
Assuming a proportion of adults are subject to care pathway			
Current estimate of adults subject to care pathway	24.0%	24.0%	24.0%
Current numbers subject to care pathway	136,717	477	477

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

	National population	Selected population	
	Standard assumptions	Standard assumptions	Local assumptions
Adult interventions			
Cost to undertake additional watchful waiting appointments	£1,004,360	£3,264	£3,264
Cost of current psychological treatment	-£32,915,087	-£106,652	-£106,652
Cost of proposed 5 sessions at 1 month for severe cases	£12,512,152	£40,520	£40,520
Cost of proposed 8-12 sessions at > 1 month	£116,215,397	£376,526	£376,526
Cost of proposed additional sessions	£16,990,985	£55,049	£55,049
Net cost of increase in therapy	£112,803,448	£365,443	£365,443
Net saving from reduction in medication	-£25,710,021	-£83,276	-£83,276
Child and adolescent interventions			
Cost of current psychological treatment	-£749,772	-£1,748	-£1,748
Cost of proposed 5 sessions at 1 month for severe cases in older children	£337,367	£734	£734
Cost of proposed 8-12 sessions at > 1 month	£3,956,528	£8,612	£8,612
Net cost of increase in therapy	£3,544,123	£7,597	£7,597
Grand total	£65,931,889	£209,754	£209,754

Appendix C: Model of care assumptions

	Current practice	Following NICE guidance	Change in practice
Watchful waiting	5%	16.5%	+11.5%
Adults on care pathway as percentage of all PTSD cases	24%	34%	+10%
Adult offered drug treatment	83.3%	35%	-48.3%
Adults offered psychological treatment	37.5%	70%	+32.5%

Appendix D: Results of sensitivity analysis

	Baseline value	Minimum value	Maximum value	Baseline cost £000s	Minimum cost £000s	Maximum cost £000s	Range £000s
Variation in the prevalence data for adults	1.5%	1.3%	3.6%	25,988	23,181	55,454	32,273
Variation in the prevalence data for children and adolescents	0.4%	0.2%	1.0%	25,988	24,501	30,449	5,948
Variation in percentage of time spent in consultation with patients and the effect on the unit cost of therapy	60% (£37.28)	40% (£55.93)	80% (27.96)	25,988	44,154	16,909	-27,245
Variation in the average salaries used to calculate the unit cost of therapy	£31,734 (mid point on band)	£27,481 (lowest point on band)	£36,578 (highest point on band)	25,988	21,750	31,598	9,848
Variation in the cost of medication including review appointments	£24.08	£20.00	£30.00	25,988	27,822	23,326	-4,496
Percentage of adults on the future care pathway	34%	24% (no increase)	44%	25,988	7,188	44,787	37,599
Variation in the number of sessions offered to adults who are not severe and acute	10 (7.9)	8 (6.2)	12 (9.3)	25,988	17,659	32,846	15,187
Variation in the percentage of patients who will not engage with psychotherapy and therefore receive medication	30%	20%	40%	25,988	30,429	21,456	-8,973
Variation in the percentage of adults who will require medication to augment psychotherapy	5%	0%	10%	25,988	23,693	28,282	4,589

Appendix E: References

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