NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Resource impact report: Spectra Optia for automated red blood cell exchange in patients with sickle cell disease (MTG28)

Published: March 2016

Summary

The annual saving to commissioners associated with implementing this guidance is anticipated to be around £12.9 million for England. This is equivalent to £18,100 per 100,000 population.

The guidance states that the case for adopting Spectra Optia for automated red blood cell exchange in people with sickle cell disease is supported by the evidence.

Spectra Optia is faster to use and needs to be done less often than manual red blood cell exchange. Spectra Optia should be considered for automated red blood cell exchange in people with sickle cell disease who need regular transfusion.

Around 700 people in England with sickle cell disease will be eligible for Spectra Optia. We estimate that around 570 people will have Spectra Optia from year 5 onwards, when a steady state is reached.

The estimated annual cost/saving of implementing Spectra Optia in England, based on assumed uptake (see the resource impact template), is shown in the table below.

Estimated resource impact of implementing Spectra Optia in England using NICE assumptions

	2016/17	**2017/18**	**2018/19**	**2019/20**	**2020/21**
People having Spectra Optia each year (n)	284	355	425	496	567
Cost impact each year for providers (£000s)	265	530	795	1,060	1,325
Saving impact each year for commissioners (£000s)	−193	−3,647	−7,599	−10,348	−14,183
Net cost/saving impact each year (£000s)	**72**	**−3,117**	**−6,804**	**−9,288**	**−12,858**

This report is supported by a resource impact template which may be used to calculate the resource impact of implementing the guidance by amending the variables in the blue cells

This technology is commissioned by NHS England. Providers are NHS hospital trusts.

1 Introduction

1.1 This report looks at the resource impact of implementing the NICE guidance on Spectra Optia for automated red blood cell exchange in patients with sickle cell disease in England. For the full recommendations, see the guidance.

1.2 The guidance states that:

- The case for adopting Spectra Optia for automated red blood cell exchange in patients with sickle cell disease is supported by the evidence. Spectra Optia is faster to use and needs to be done less often than manual red blood cell exchange.
- Spectra Optia should be considered for automated red blood cell exchange in patients with sickle cell disease who need regular transfusion.

1.3 This report is supported by a resource impact template. The template aims to help organisations in England, Wales and Northern Ireland plan for the financial implications of implementing the NICE guidance by amending the variables in the blue cells.

1.4 NICE has developed an Adoption Support Resource alongside the resource impact products to support the adoption of this guidance. The adoption support resource should be read in conjunction with this report.

2 Background and epidemiology of sickle cell anaemia

2.1 The Spectra Optia Apheresis System (Terumo BCT) is an apheresis and cell collection platform. The device can be used for automated red blood cell depletion and exchange in adults or

children with sickle cell disease, who are on a long-term or temporary/medium-term transfusion regime.

2.2 There are around 13,500 people with sickle cell disease in England. People with sickle cell disease have a mutated variant of haemoglobin that causes red blood cells to form a distinctive sickle shape. These red blood cells do not flow easily and can cause blockages, known as vaso-occlusive crises. These can occur in any part of the body but are most serious when they restrict the blood flow to major organ systems.

2.3 Most people with sickle cell disease live in major urban centres, so services in cities must be able to provide for a large sickle cell population. In contrast, in rural areas there may be only a small number of people with sickle cell disease. The clinical experts advised that around 75% of sickle cell people are based in London, with significant populations in both Manchester and Birmingham.

2.4 Conventional treatment for sickle cell disease is with hydroxycarbamide. If hydroxycarbamide is ineffective, contra-indicated, associated with side effects or not tolerated, the people may need a long-term red blood cell transfusion regime. People who have had a stroke or are at high risk of stroke may need regular transfusion therapy. There are around 700 people in England who are on a long-term transfusion regime.

Table 1 Number of people eligible for treatment in England

Population	Proportion	Number of people
Total population		53,865,817
Prevalence of sickle cell disease	0.025%	13,500
People needing regular transfusion/red blood cell exchange	5.25%	709
Total number of people eligible for Spectra Optia		709
Total number of people estimated to have Spectra Optia each year from year 5 onwards	80.00%	567

2.5 We estimate that approximately 700 people are eligible for treatment with Spectra Optia each year.

2.6 We estimate, based on expert opinion, that after year 5, once uptake has reached 80%, around 570 people will have treatment with Spectra Optia each year.

3 Assumptions made

3.1 The resource impact template makes the following assumptions:

- Currently people are treated with either top-up transfusions or manual exchange which increases their level of iron overload. This is treated with chelation therapy.
- People with mild iron overload will no longer need chelation therapy after 2 years, when using Spectra Optia.
- Not all people with moderate or severe iron overload will be able to reduce their iron overload sufficiently to no longer need chelation therapy, when using Spectra Optia.

- Spectra Optia is not used for children, who are too young or too small.
- Where new Spectra Optia machines are needed the cost including VAT is around £62,500.
- Each machine would support regular red blood cell exchange for 30 people with sickle cell disease per year.

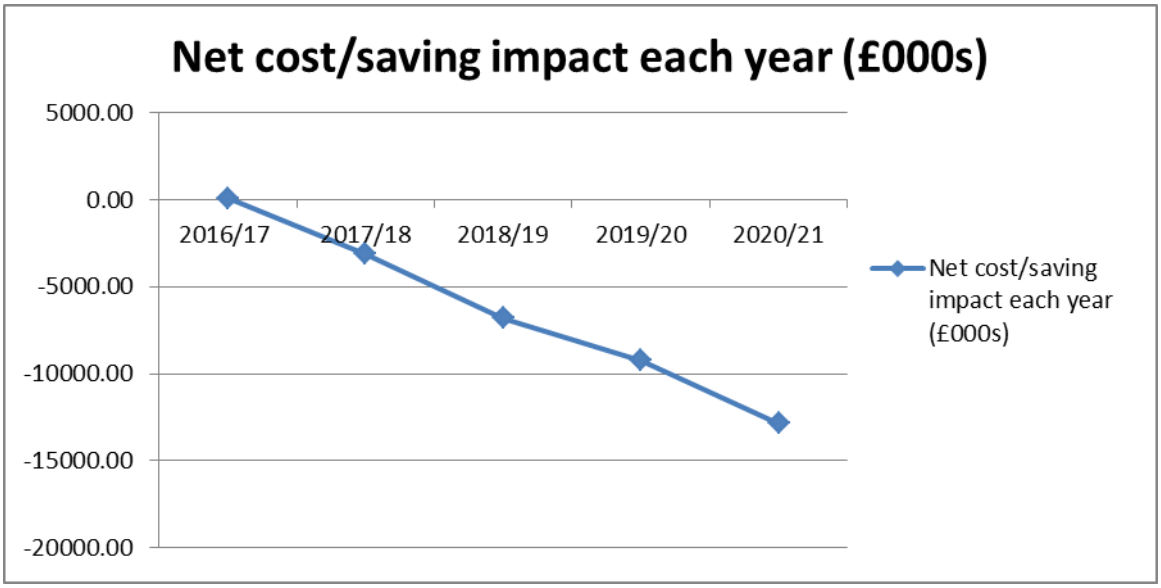
4 Resource impact

4.1 The annual saving associated with implementing the guidance for the population of England is shown in table 2 below. The saving from year 5 is approximately £18,100 per 100,000 population.

Table 2 Resource impact of implementing Spectra Optia in England using NICE assumptions

	2016/17	2017/18	2018/19	2019/20	2020/21
Population having Spectra Optia each year (n)	284	355	425	496	567
Cost impact each year for providers (£000s)	265	530	795	1,060	1,325
Saving impact each year for commissioners (£000s)	−193	−3,647	−7,599	−10,348	−14,183
Net cost/saving impact each year (£000s)	72	−3,117	−6,804	−9,288	−12,858

Resource impact of implementing guidance on Spectra Optia over 5 years



Estimated resource impact for providers:

- A Spectra Optia machine costs around £62,400 including VAT. This includes the software needed to run red blood cell exchange for people with sickle cell disease.
- Maintenance costs for each machine are estimated to be £4,600 per year.
- There will be an increase in the number of units of red blood cells transfused at each visit.
- The number of attendances for red blood cell exchange is anticipated to fall because automated exchange does not need to be done as often as manual exchange, but the overall number of units transfused is anticipated to increase.
- There will be fewer non-elective inpatient admissions for people with sickle cell crisis.

4.2 Estimated resource impact for commissioners:

- We anticipate that fewer people will need chelation therapy, which is a high cost treatment and excluded from tariff. There

may be significant savings for commissioners; it is estimated that by year 5 these savings may be £12.9 million.

- We expect a saving from fewer attendances for red blood cell exchange and fewer non-elective inpatient admissions for people with sickle cell crisis.
- Some of the savings may need to be reinvested in provider organisations to ensure that the savings are achieved.

4.3 It is estimated that the number of units of red blood cells transfused will increase by 30 units per person per year (because exchange with Spectra Optia uses on average 9 units compared with 2.5 for top up transfusion and manual exchange). Units of red blood cells are a limited resource and this should be taken into account when planning any changes to services.

5 Savings and benefits

5.1 We anticipate that there will be savings if commissioners and providers work together to reduce the need for chelation therapy by using Spectra Optia.

5.2 There will be a reduction of 5 hospital appointments per year for people with sickle cell disease receiving treatment with Spectra Optia than with manual or top-transfusion. Each attendance will be shorter by around 4 hours as a result of the more efficient transfer enabled by Spectra Optia. This will reduce the impact that needing transfusion therapy has on education and work for people with sickle cell disease.

6 Implications for commissioners

6.1 Implementing the guidance should lead to savings for commissioners and providers, but will need investment to enable the move to automated red blood cell exchange. Commissioners

and providers are advised to work together to achieve this objective.

6.2 Spectra Optia falls within programme budgeting code 03X.

About this resource impact report

This resource impact report accompanies the NICE medical technology guidance on Spectra Optia for automated red blood cell exchange in patients with sickle cell disease and should be read in conjunction with it. See terms and conditions on the NICE website.

This report is written in the following context

This report represents the view of NICE, which was arrived at after careful consideration of the available data and through consulting healthcare professionals. The report is an implementation tool and focuses on the recommendations that were considered to have a significant impact on national resource use.

Assumptions used in the report are based on assessment of the national average. Local practice may be different from this, and the impact should be estimated locally.

Implementation of the guidance is the responsibility of local commissioners and providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this costing tool should be interpreted in a way that would be inconsistent with compliance with those duties.