

Putting NICE guidance into practice

## **Costing statement**

**Implementing the NICE guidance on  
apixaban for the treatment and  
secondary prevention of deep vein  
thrombosis and/or pulmonary  
embolism (TA341)**

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## Summary

Apixaban provides another treatment option for treating and preventing deep vein thrombosis and pulmonary embolism in adults. Because it is an alternative to rivaroxaban and dabigatran etexilate and the 3 drugs are similarly priced, NICE does not anticipate a significant impact on resources as a result of the guidance.

The commissioners for this technology are clinical commissioning groups (CCGs) and the providers can be secondary care services (hospitals) or primary health care services (GPs).

# 1 Introduction

1.1 The guidance states that apixaban is recommended, within its marketing authorisation, as an option for treating and preventing recurrent deep vein thrombosis and pulmonary embolism in adults.

1.2 Other treatment options include warfarin, rivaroxaban and dabigatran etexilate, which were recommended in previous NICE technology appraisal guidance on:

- [rivaroxaban for the treatment of deep vein thrombosis and prevention of recurrent deep vein thrombosis and pulmonary embolism \(TA261\)](#)
- [rivaroxaban for treating pulmonary embolism and preventing recurrent venous thromboembolism \(TA287\)](#)
- [dabigatran etexilate for the treatment and secondary prevention of deep vein thrombosis and/or pulmonary embolism \(TA327\).](#)

1.3 People may appreciate the option of using oral anticoagulants such as apixaban, rivaroxaban and dabigatran etexilate, because they avoid the need for the monitoring and dose adjustments associated with warfarin.

## 2 Patient numbers affected

2.1 Table 1 shows the estimated incidence of deep vein thrombosis and pulmonary embolism in England.

**Table 1: Incidence of deep vein thrombosis and pulmonary embolism**

Age range (years)	Study populations			Extrapolated populations	
	Events <sup>a</sup>	Population <sup>a</sup>	Incidence <sup>a</sup>	Population in England <sup>b</sup>	Annual incidence for England
18–29	1,266	3,883,101	0.0326%	9,063,992	2,955
30–39	2,064	3,838,841	0.0538%	7,656,467	4,117
40–49	2,543	4,093,014	0.0621%	8,273,052	5,140
50–59	3,569	3,585,120	0.0996%	6,825,833	6,795
60–69	5,084	2,874,437	0.1769%	5,895,098	10,427
70–79	6,606	2,015,974	0.3277%	3,788,618	12,415
80–89	5,980	1,100,959	0.5432%	2,511,797	15,792*
90 and over	1,579	221,078	0.7142%		
<b>Total incidence</b>					<b>57,640</b>

<sup>a</sup> Martinez C, Cohen AT, Bamber L et al. (2014). Epidemiology of first and recurrent venous thromboembolism: A population-based cohort study in patients without active cancer. *Thromb Haemost* 14 AD; 112.

<sup>b</sup> GP registered population 2012: Public Health England - patients registered with GP Practices, by age and sex.

\*This figure was derived by using an average of the incidence figures for people aged 80-89 and people aged 90 and over.

2.2 For people whose risk of recurrent venous thromboembolism outweighs the risk of bleeding, secondary prevention would be prescribed and would generally be life-long. A prevalent population will therefore build up over time. It is estimated that around 63,000 people could be having life-long treatment after 5 years.

2.3 This number was calculated by assuming that 8% (2,476) ([rivaroxaban for the treatment of deep vein thrombosis and prevention of recurrent deep vein thrombosis and pulmonary embolism: costing template](#)) of the 30,950 deep vein thrombosis incident population and 50% (13,345) ([rivaroxaban for treating pulmonary embolism and preventing recurrent venous thromboembolism](#)) of the 26,690 pulmonary embolism incident population will build up over 4 years, to form a prevalent population of people who will continue to have anticoagulant treatment.

- 2.4 This gives an estimated total population of 121,000 (58,000+63,000) that may need treatment after 5 years. Many people with venous thromboembolism take warfarin and will likely continue to do so.
- 2.5 It is estimated that around 19,000 people with venous thromboembolism have cancer. The Committee concluded that there were insufficient data to assess the effectiveness and safety of apixaban in people with active cancer who had deep vein thrombosis or pulmonary embolism, and that it was not possible to make a specific recommendation for this group of people.
- 2.6 The standard treatment for venous thromboembolism in people who have cancer is low molecular weight heparin (LMWH) for 6 months; administered by injection. It is expected that in clinical practice, doctors will continue to prescribe LMWH for 6 months for people with cancer and not use apixaban, rivaroxaban or dabigatran in this patient group.
- 2.7 For the remaining population without cancer needing treatment after 5 years (102,000), it is estimated that 52% of people with venous thromboembolism will have newer oral anticoagulants and 48% will have warfarin (costing statement for [dabigatran etexilate for the treatment and secondary prevention of deep vein thrombosis and/or pulmonary embolism](#)).
- 2.8 This equates to an estimated 53,040 people in the eligible population having newer oral anticoagulants and 48,960 having warfarin. The uptake of the newer oral anticoagulants is likely to vary depending on patient choice.
- 2.9 Warfarin treatment requires monitoring and dose adjustments which could affect a person's lifestyle and quality of life. Apixaban, along with the other oral anticoagulants, has the advantage of not needing monitoring or individual dose adjustment. This could benefit the patient and reduce the costs of providing these clinics.

### **3 Resource impact**

- 3.1 Appendix 1 shows the cost of treatment per person for the different treatments. There is no significant cost difference between apixaban and the other newer oral anticoagulants.
- 3.2 The cost of providing apixaban is similar to dabigatran etexilate. Treatment with dabigatran etexilate requires initial treatment with LMWH. Apixaban does not require initial treatment with LMWH. People may therefore prefer to be treated with apixaban as it will not require LMWH injections. The initial treatment for LMWH is based on 9 days. LMWH initial treatment is added to the cost of dabigatran etexilate for those people having treatment on an outpatient basis. For inpatients, treatment is often started with LMWH before a decision is made about which oral anticoagulant to use.

## Appendix 1

### Estimated cost impact of providing apixaban per person for the different treatment periods compared with dabigatran etexilate and rivaroxaban

		Length of treatment			
		3 months <sup>a</sup>	6 months <sup>a</sup>	12 months <sup>a</sup>	Secondary prevention – lifelong treatment <sup>b</sup> Per year
<b>Proportion of people having each length of treatment</b>					
DVT <sup>b</sup>		42%	44%	8%	8%
PE <sup>c</sup>		3%	29%	19%	50%
Treatment	Regimen	Estimated drug cost per person (£) <sup>e</sup>			
Apixaban	Dosage: 10 mg twice a day for 7 days, 5 mg twice a day for at least 3 months. After 6 months 2.5 mg twice a day	£216	£417	£818	£802
Dabigatran etexilate (without LMWH)	Dosage 300 mg (150 mg twice daily).	£200	£402	£802	£802
Dabigatran etexilate (with 9 days of LMWH)	Age 80+ and people having verapamil dosage is 220 mg (110 mg twice daily).	£307	£509	£909	£802
Rivaroxaban	Dosage: 30 mg per day (15 mg twice daily) for 21 days, 20 mg per day for the remainder of treatment.	£235	£428	£811	£767
<p><sup>a</sup> The ERG for during the technology appraisal of dabigatran etexilate for the treatment and secondary prevention of deep vein thrombosis and/or pulmonary embolism said that acute treatment duration of 6 months reasonably reflects current clinical practice, but that a treatment duration of 3 months is increasingly common. The costing templates for TA261 and TA287 also include a 12-month treatment option.</p> <p><sup>b</sup> Secondary prevention is assumed to be lifelong. In patients for whom the risk of recurrent</p>					

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VTE did not outweigh the risk of bleeding, secondary prevention would not be prescribed, with treatment stopping after acute treatment of the initial VTE event.

<sup>c</sup> Uptake estimates taken from [rivaroxaban for the treatment of deep vein thrombosis and prevention of recurrent deep vein thrombosis and pulmonary embolism](#).

<sup>d</sup> Uptake estimates taken from [rivaroxaban for treating pulmonary embolism and preventing recurrent venous thromboembolism](#).

<sup>e</sup> The drug costs have been taken from the NHS electronic drug tariff (March 2015). A 60-tablet pack of Apixaban costs £65.90 for 2.5 mg tablets and a 56-tablet pack costs £61.50 for 5 mg tablets. A 60-tablet pack of dabigatran etexilate costs £65.90 for both 110 mg and 150 mg tablets. A 28-tablet pack of rivaroxaban costs £58.80 for both 15 mg and 20 mg tablets. LMWH is assumed to be enoxaparin sodium 120 mg/0.8 ml solution for injection pre-filled syringes, which costs £87.93 for 9 syringes. The weighted average cost of administering LMWH for 9 days is estimated to be around £20 based on the costing template for NICE's technology appraisal guidance [on rivaroxaban for treating pulmonary embolism and preventing recurrent venous thromboembolism](#).

Abbreviations: DVT, deep vein thrombosis; ERG, Evidence Review Group; LMWH, low molecular weight heparin; PE, pulmonary embolism; VTE, venous thromboembolism.