Aim To assess the safety and efficacy of the current dalteparin dosing recommendations in achieving therapeutic anti-Xa levels, when used for the treatment of thrombosis in neonates and infants. The objectives included: To assess the number of neonates/infants administered dalteparin for thrombotic events To evaluate how many neonates/infants achieved a therapeutic anti-Xa level (4 hour post-dose level of 0.5–1 unit/ml) To measure the duration between starting dalteparin and achieving a therapeutic anti-Xa level.

Methods Retrospective electronic searches were conducted to identify neonates and children prescribed and administered dalteparin between January 2016 and October 2017. These included reports from the JAC pharmacy dispensing programme, Medchart (electronic prescription chart) and Omnicell (ward electronic medicines storage system). A data collection form was designed using Excel, and piloted on a few randomly selected patients. Following the pilot, appropriate changes were made to the form. Inclusion criteria included: Treatment doses of dalteparin Neonates/infants under 12 months age Exclusion criteria included: Dalteparin thromboprophylaxis Missing data e.g. no anti-Xa levels recorded Treatment doses of dalteparin Neonates/infants under 12 months age Exclusion criteria included: Dalteparin thromboprophylaxis Missing data e.g. no anti-Xa levels recorded

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Results A total of 25 patients were included in the study: 18 neonates and 7 infants. In the neonatal group, ages ranged from 32 weeks preterm to 42 days post term delivery. The median age at time of dalteparin administration was 15 days. Weights ranged from 1.8 kg to 4.2 kg. In the infant group, ages ranged from 2 to 11 months. Weights ranged from 3.2 kg to 11.7 kg. 100% (25/25) patients achieved a therapeutic anti-Xa level; however, 100% (25/25) patients required dose adjustments to reach these levels. The mean dose required to reach therapeutic anti-Xa levels in neonates and infants was 250 units/kg (±60) and 140 units/kg (±50), respectively. In neonates, the duration between initial dalteparin administration and achieving therapeutic anti-Xa levels ranged from 2–8 days. In 8/18 (44%) patients, it took a minimum 5 days to achieve therapeutic anti-Xa levels. No episodes of renal impairment or thrombocytopenia were observed.

Conclusion Dalteparin was successful in achieving therapeutic anti-Xa levels in neonates and infants following cumulative dose increases from the initial dose. The initial recommended dose of dalteparin for neonates is too low and should be increased to 250 units/kg achieve therapeutic anti-Xa levels quicker, and to minimise the need for numerous blood tests and dose adjustments. Further studies are required to verify these results, due to the small patient numbers.