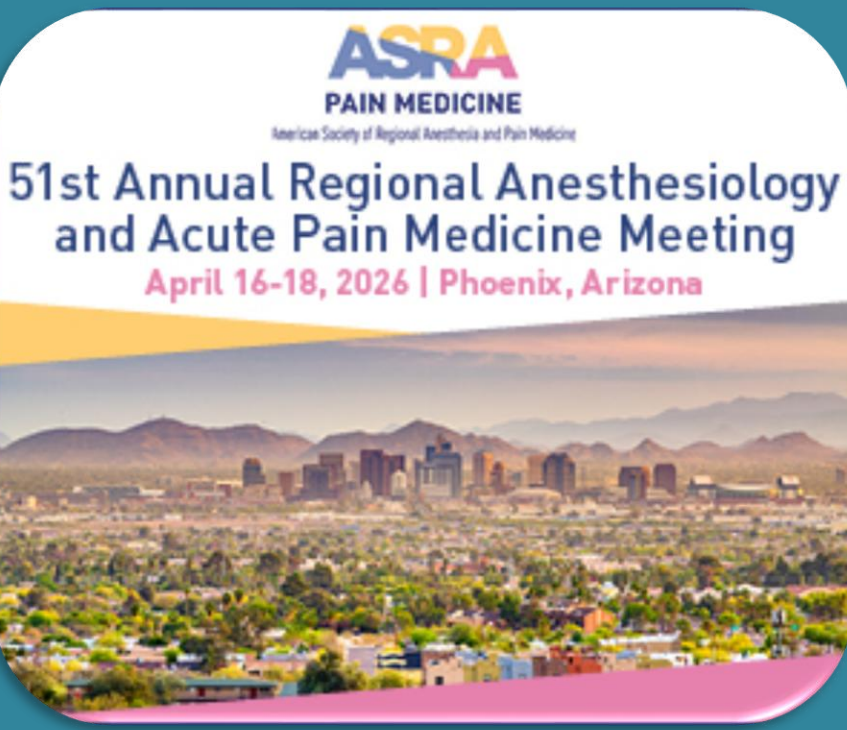




Safe HEP-EPI: Preventing Inadvertent LMWH Administration After Epidural Placement Through System-Level Anticoagulation Controls



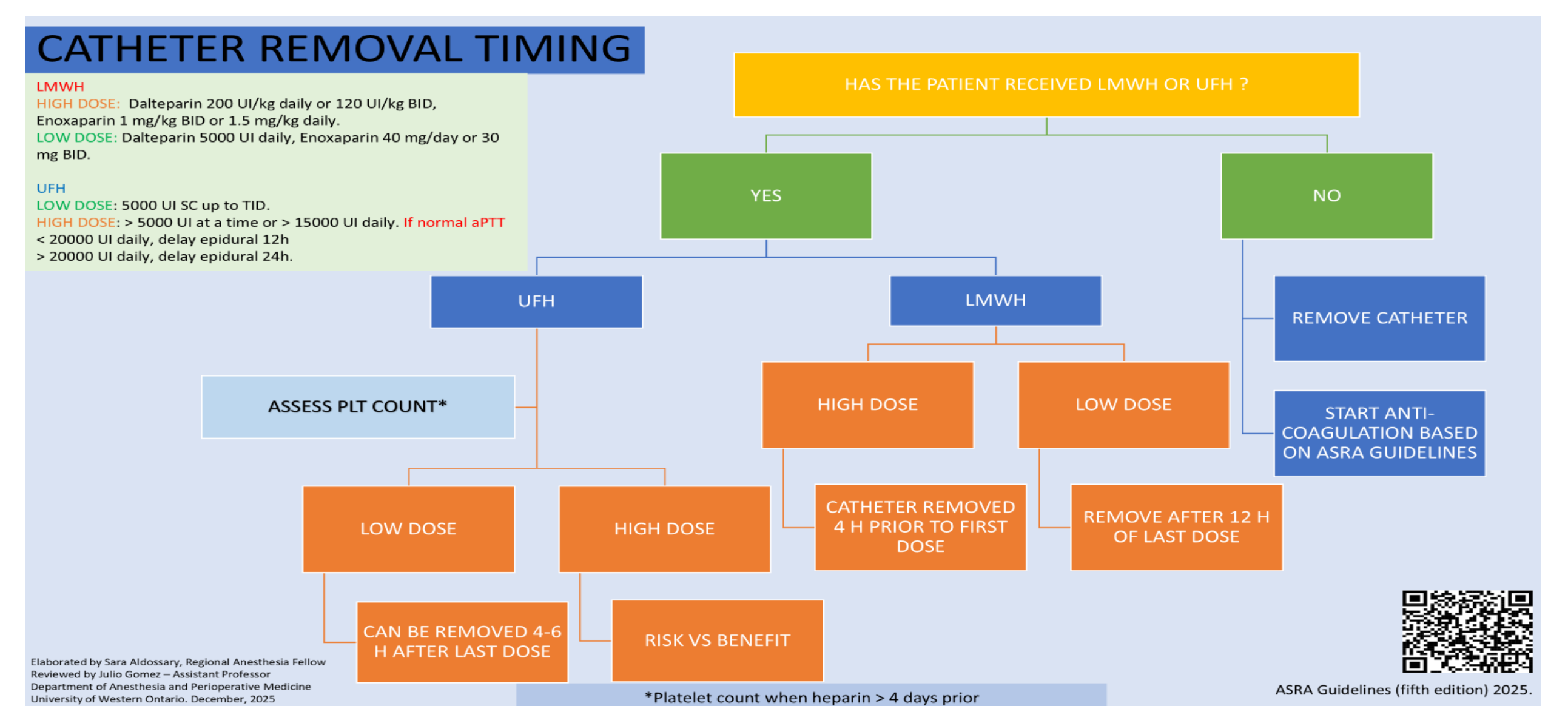
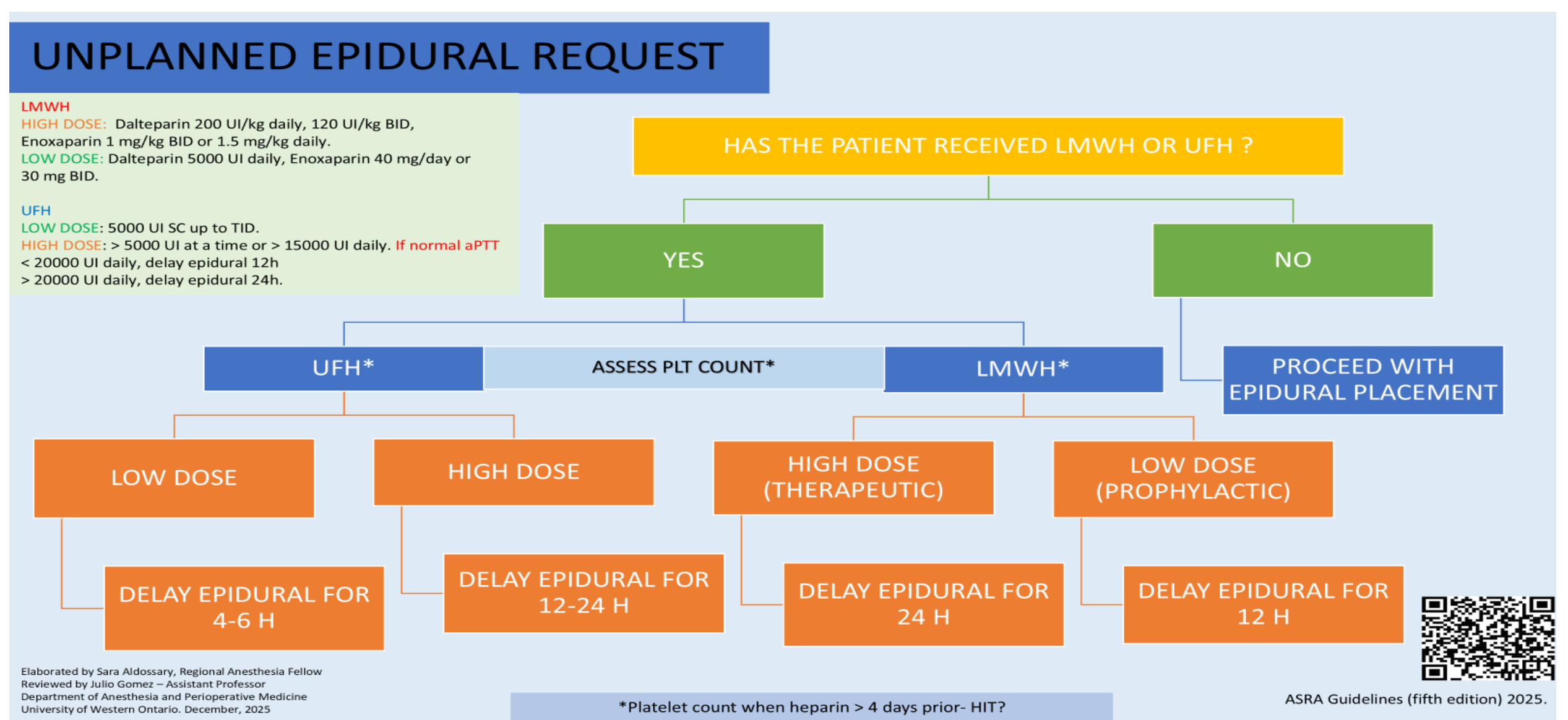
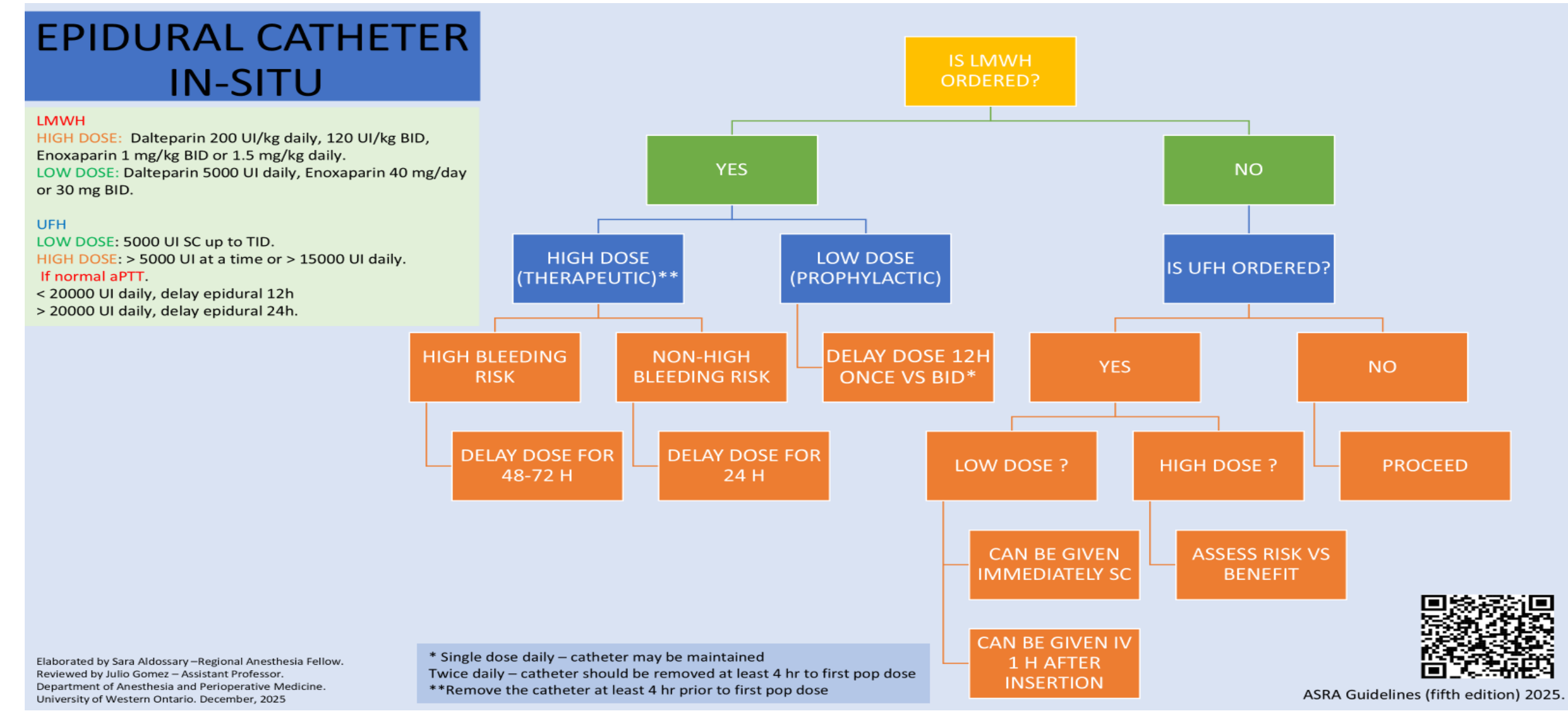
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Introduction Regional anesthesia techniques, including epidural catheters, are integral to perioperative multimodal analgesia. Their use in patients requiring anticoagulation carries a rare but potentially catastrophic risk of neuraxial hematoma. At tertiary centers, high comorbidity burden patients necessitate strict adherence to anticoagulation timing guidelines. Despite established recommendations, inappropriate perioperative administration of low molecular weight heparin (LMWH) following epidural placement has been observed, representing a predictable and preventable safety risk within existing perioperative workflows.

Results Baseline review identified multiple instances of LMWH (Dalteparin) administration intraoperatively after epidural catheter placement, contrary to current safety guidelines. Implementation of the standardized workflow improved interdisciplinary communication and clarified anticoagulant selection and timing. Key interventions included preoperative identification of epidural placement, intraoperative confirmation during surgical checklist, pharmacy hard-stops for LMWH dispensing, and visible chart reminders. Early auditing demonstrated improved compliance with UFH use during appropriate perioperative windows and elimination of inadvertent intraoperative LMWH dosing in patients with epidural catheters. Documentation accuracy and awareness of anticoagulation safety in the context of neuraxial techniques significantly improved across teams. Ongoing monitoring focuses on sustained compliance, neurologic surveillance adherence when indicated, and prevention of anticoagulant-related neuraxial complications.

Discussion This quality improvement initiative demonstrates that inadvertent LMWH administration after epidural placement is a preventable, system-driven safety risk rather than an individual error. A standardized multidisciplinary workflow design incorporating HER, more visible chart reminders, and pharmacy safeguards can reliably align clinical practice with established neuraxial anticoagulation guidelines. Such system-level interventions are critical to reduce the risk of preventable harm and enhancing safety in perioperative care.



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