Editorial

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Beyond the count: Operationalising risk-based prevention of retained surgical items

Inadvertently retained surgical items (RSIs) remain among the most serious and persistent adverse events in perioperative care. Despite their classification as 'never events', RSIs continue to occur across surgical specialties and healthcare systems, resulting in avoidable patient harm, professional distress, and substantial medico-legal consequences. Their persistence suggests that the problem is not one of awareness or intent, but of how prevention is conceptualised and enacted in practice.

Contemporary perioperative standards increasingly acknowledge that RSI risk is variable rather than uniform. Both the Australian College of Perioperative Nurses (ACORN) and the Association of periOperative Registered Nurses (AORN) identify patient, procedural and system-level factors that elevate RSI risk[1,2]. In principle, this reflects a risk-based understanding of the problem. In practice, however, RSI prevention remains overwhelmingly count-centric. Counting continues to represent the primary, and often the only, formalised safety control. Risk is acknowledged conceptually, but it rarely alters the preventive pathway.

This disconnect has been recognised within the perioperative nursing literature itself. Integrative reviews published in the *Journal of Perioperative Nursing (JPN)* have demonstrated that counting is vulnerable to patient, procedural, environmental and human factors, and that adjunct strategies such as technology-assisted detection are emerging but not yet embedded in routine practice or standards[3,4]. Australian analyses of RSI-related case law further demonstrate that RSIs can and do occur despite adherence to counting procedures, highlighting gaps between policy compliance and patient safety outcomes[5].

The assumption that correct counts equate to safety is not supported by the broader evidence base. Seminal work by Gawande et al.[6] demonstrated that RSIs frequently occur despite counts being documented as correct. Subsequent studies have confirmed both the frequency of discrepancies in surgical counts and, more concerningly, the occurrence of retained items in cases where no discrepancy was identified[7,8]. Counting is therefore necessary, but demonstrably insufficient as a stand-alone prevention strategy.

Counting is inherently vulnerable to the same human and system factors that undermine other checklist-based processes. It relies on attention, communication, shared mental models and stable team composition in environments characterised by time pressure, interruptions, staff turnover and competing priorities. Counting also fails to account for procedural complexity and intra-operative changes, particularly when additional materials are introduced in response to bleeding, anatomical challenges or unplanned procedural extension. When counting is treated as the endpoint of RSI prevention, there is a risk that procedural compliance will displace situational awareness and critical appraisal.

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Importantly, RSI risk is not randomly distributed. It is patterned, predictable and stratifiable. A comprehensive meta-analysis by Moffatt-Bruce et al.[9] synthesised known RSI risk factors and explicitly proposed a risk stratification system, arguing that cumulative risk profiles should guide prevention strategies rather than uniform application of controls[9]. Duggan and colleagues[10] extended this work by proposing a probabilistic risk model for retained foreign object prevention, drawing on safety engineering principles used in other high-reliability industries. More recently, the development and psychometric testing of a retained surgical items risk assessment scale reflect an emerging shift toward formalised risk measurement rather than reliance on implicit judgement alone[11].

Collectively, this literature demonstrates that risk-based approaches to RSI prevention are not novel. They have been conceptualised, empirically supported and discussed within perioperative nursing scholarship, including in JPN. Yet they have not been widely operationalised in routine practice. This limited uptake reflects structural and cultural barriers rather than evidentiary gaps. Counting is familiar, auditable and easily codified in policy. Risk assessment, by contrast, requires judgement, interdisciplinary discussion and local adaptation – activities that are harder to standardise and measure. There is also a persistent discomfort with differentiated practice, where uniformity is equated with safety. However, uniform processes applied to variable risk represent efficiency masquerading as safety.

A genuinely risk-based approach to RSI prevention would explicitly link risk assessment to proportionate preventive strategies. Pre-operative or early intra-operative assessment would consider patient factors (such as body mass index and anatomical complexity), surgical factors (including duration, positioning, and anticipated blood loss), team and system factors (such as multiple teams or handovers) and the volume and type of retainable items introduced into the surgical field. Crucially, the purpose of this assessment would not be documentation, but escalation.

Lower-risk cases may reasonably rely on standardised counting processes performed at defined time points. In contrast, higher-risk cases should trigger enhanced, layered controls supported in the literature. These include counting all retainable items rather than restricted lists, structured sponge and instrument management practices designed to reduce cognitive load and interruption, and deliberate cavity exploration at critical stages of wound closure[2–4,9]. For cases assessed as highest risk, additional safeguards include mandatory use of adjunct technologies, such as bar-coded sponges and selective intra-operative imaging when indicated, and the introduction of redundancy through an additional independent end-of-case verification[2,8–10].

These strategies already exist within contemporary guidelines and the empirical literature. What is missing is a structured pathway that reliably translates identified risk into mandated escalation of preventive action. In the absence of such pathways, risk assessment is at risk of becoming performative rather than protective, and counting remains the default response regardless of context.

For perioperative nurses, a shift toward risk-based RSI prevention represents an affirmation rather than a dilution of professional expertise. Risk assessment, anticipation and coordination are core nursing competencies. Embedding RSI prevention within a structured risk framework positions perioperative nurses as safety leaders who integrate technical processes with contextual judgement. It also reframes accountability – rather than asking whether counts were correct, teams are prompted to ask whether the controls matched the risk.

In summary, current ACORN and AORN guidelines already acknowledge that RSI risk is variable. The problem is not conceptual, but operational. Until risk meaningfully alters how prevention is enacted, RSI strategies will remain count-centric and vulnerable to the same failures that have persisted for decades. The perioperative nursing literature – including work published in this journal – supports a different approach. If RSIs are truly unacceptable, then prevention must move beyond the count.

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