

# Complications of small-bore feeding tubes: is newer technology necessarily better?

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Dear editor,

Jacobson *et al*<sup>1</sup> keenly examined how a novel electromagnetic tracking system may be safely used to ensure correct placement of small-bore feeding tubes (SBFTs). Clinical practice has shifted such that SBFTs are preferred for short-term feeding due to a reduction in aspiration risk and perceived patient comfort.<sup>2</sup> The latter, however, is largely anecdotal and may reflect provider perception rather than reality. In actuality, traditional large-bore feeding tubes (LBFTs) may be the favorable option.

SBFTs are commonly placed blindly with a 1%–3% incidence of erroneous airway insertion. A pneumothorax occurs in one-third of pulmonary misplacements with an associated mortality rate reportedly exceeding 20%. Additional pulmonary complications include hemothoraces, pneumonias and broncho-pleural fistulas.<sup>1,3</sup> SBFTs employ a rigid guidewire—the suspected culprit behind direct pulmonary injury—for structural support. Their smaller caliber also increases risk of traversing an endotracheal tube cuff and passing into the distal bronchioles before detection.<sup>4</sup>

Though Jacobson *et al* reported no pulmonary complications in their cohort, the study was designed as a safety and feasibility analysis. They astutely acknowledge the relatively small sample included, and with a low event rate for misplacement quoted in various studies, readers must be cautious about drawing conclusions regarding complication frequency in a broader clinical context. The under-reported incidence of misplacement in the literature and the undetermined comparative cost of modern methods are of additional importance.<sup>1,5,6</sup> Thus, large-scale prospective studies establishing efficacy and cost-effectiveness of novel approaches against conventional practices are still necessary. Targeting populations at highest risk for misplacement—critically ill and neurologically injured patients—would also be of unique interest.

Large-bore ( $\geq 14$ Fr) devices are a common alternative. Generally easier to insert, LBFTs lack a stylet and are advantageous for gastric decompression/irrigation. Pulmonary complications are similar to those of SBFTs, but incidence is even more poorly documented. Outside of specific situations where SBFTs may be indicated (high aspiration risk, feeding intolerance, altered gastric anatomy and severe gastroparesis), traditional LBFTs might be superior because of their safety profile, ease/speed of placement and cost-efficiency when considering confirmation technology expenses and SBFT-related consequences.<sup>7</sup> Admittedly, this may purely be speculation, as dedicated studies regarding LBFT

complications are lacking.<sup>8</sup> Despite some evidence in favor of SBFTs with respect to aspiration pneumonia, this benefit has not translated into other clinically significant measures; gastric access for initial enteric nutrition is still recommended.<sup>9,10</sup>

In conclusion, we emphasize the scarcity of data regarding traditional LBFTs. Thorough assessment of complication rates would be beneficial in providing a framework to address safety concerns with various types of enteric access. While advancements in confirmation techniques of SBFTs are necessary and should be met with excitement, their success must be interpreted with respect to alternative methods. Directly investigating superiority or non-inferiority of large-bore versus small-bore tubes in regards to misplacement, pulmonary complications and cost-effectiveness remains an area of interest in critical illness nutrition with the potential to improve patient safety and avoid unnecessary healthcare expenditures. Until then, LBFTs may be preferred.

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