

# Quantifying the Economic Impact of Flexible Endoscope-Related Procedure Rescheduling in NHS Endoscopy Services: A Retrospective Analysis and Survey-Based Model

Joshua Hicks<sup>1</sup>, Philip Skinner<sup>2</sup>  
<sup>1</sup>Olympus Corporation, Southend-on-Sea, United Kingdom, <sup>2</sup>Olympus Corporation, Southend-on-Sea, United Kingdom

## Objective

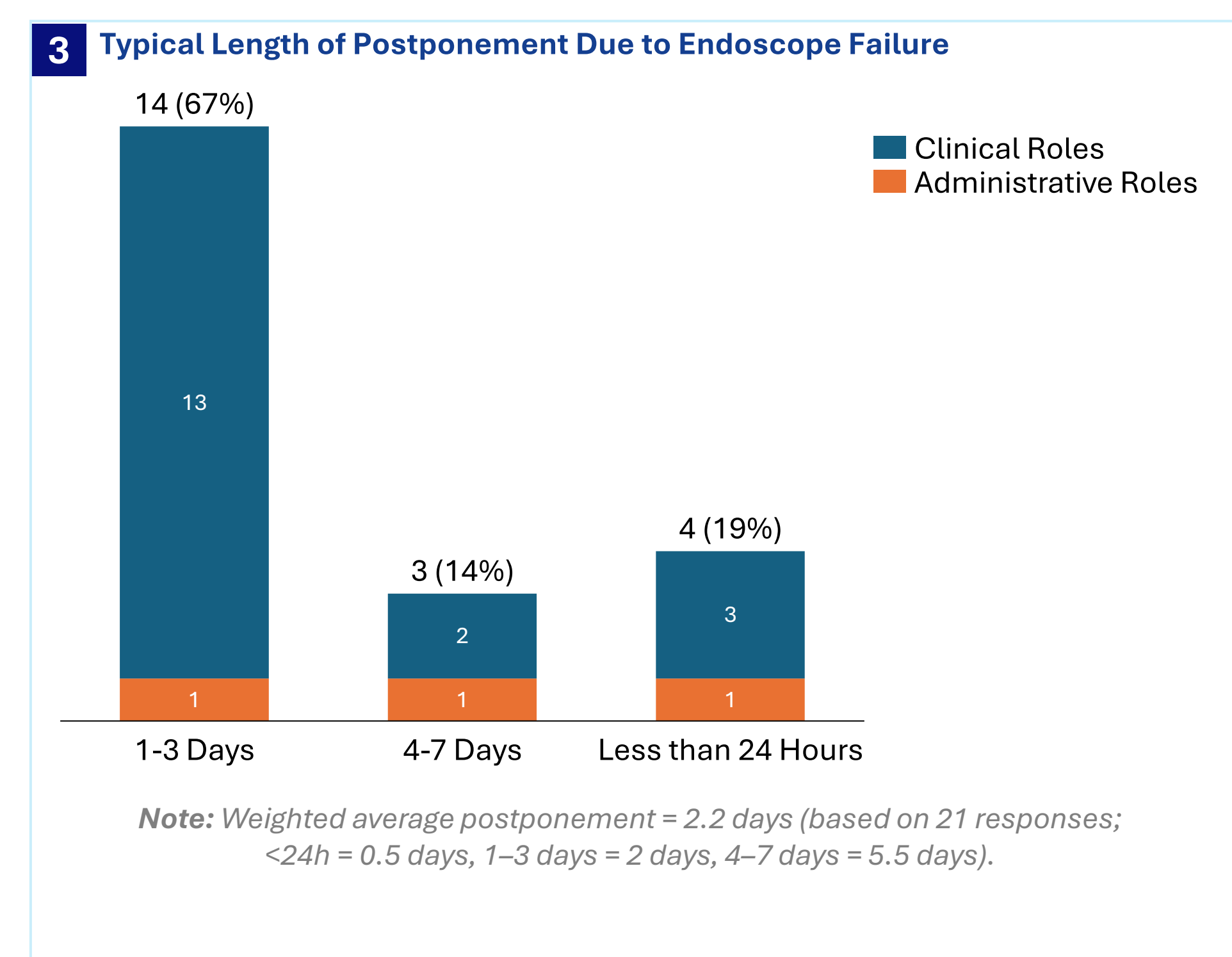
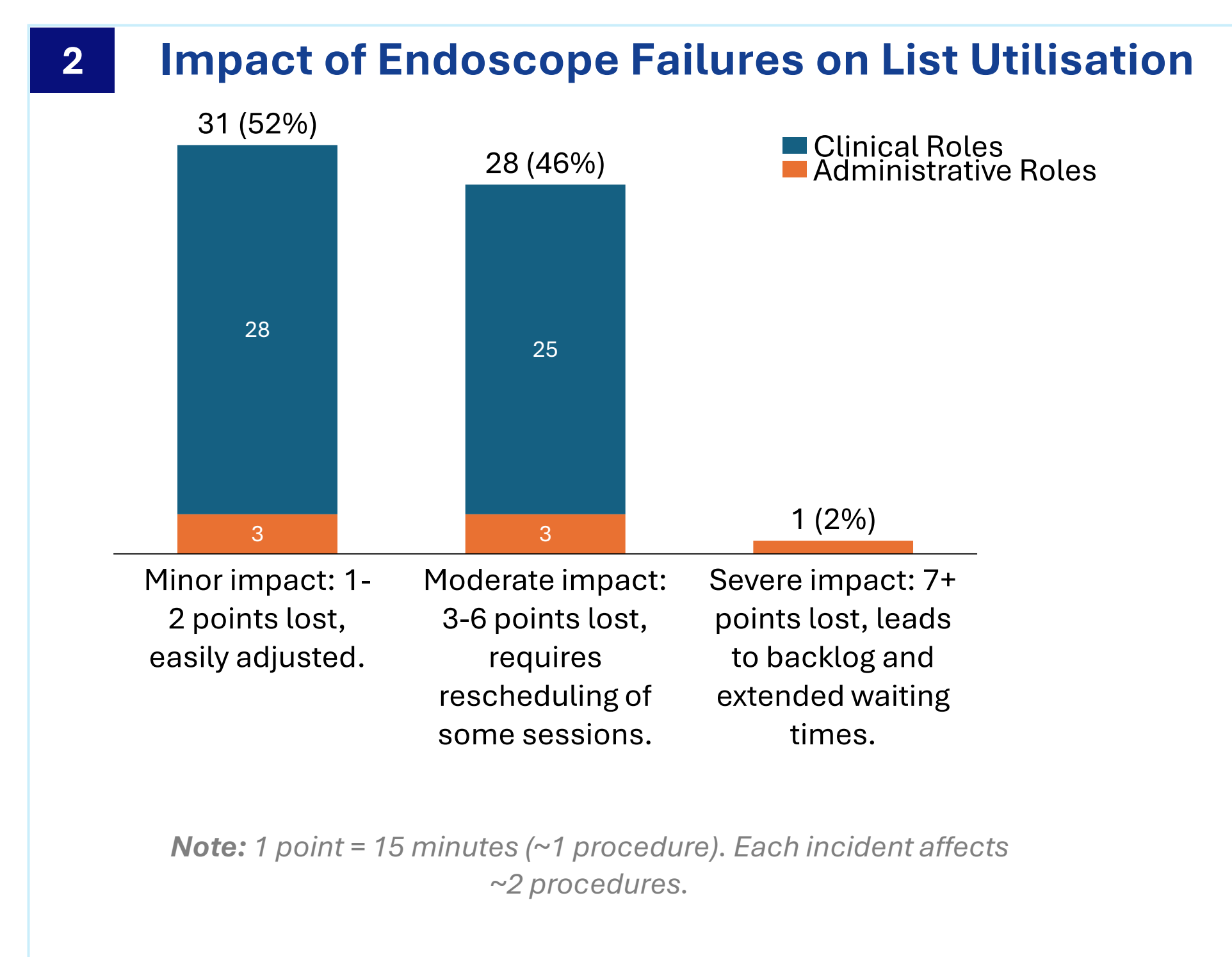
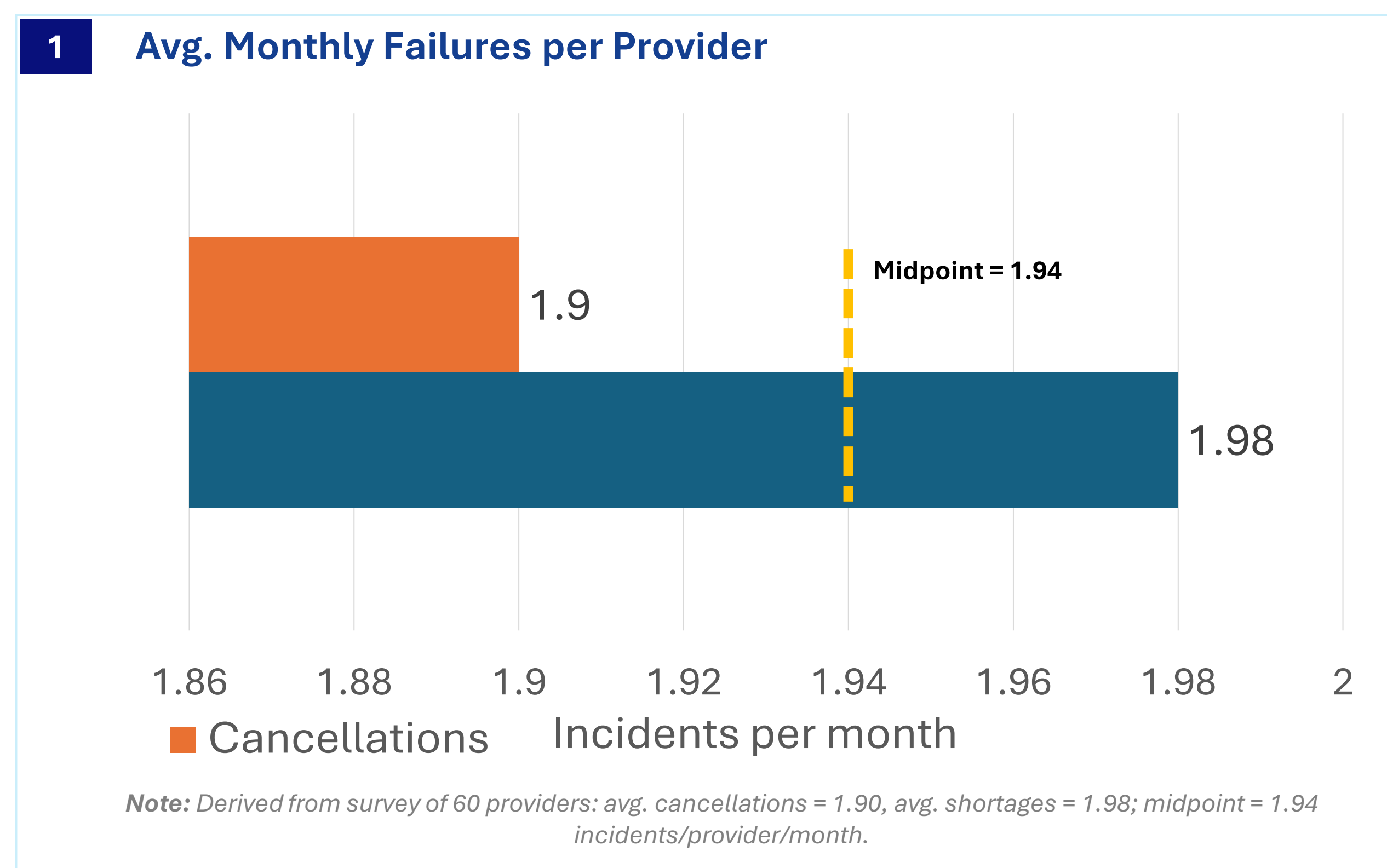
To estimate the operational and financial impact of procedure rescheduling due to flexible endoscope failures across NHS endoscopy services, using provider-level activity data and survey-based incident reporting to model delays, lost procedure time, and unrealised tariff income at both the local and national levels.

## Background

- UK GI endoscopy demand has surged – ~2 million procedures/year were done pre-COVID<sup>1</sup>, and one analysis reports demand doubled over the past 5 years driven by an ageing population, rising GI disease burden and expanded colorectal screening.<sup>2</sup>
- Equipment failures disrupt throughput: broken or damaged flexible endoscopes reduce the available inventory which may cause service delays, potentially forcing procedure cancellations or rescheduling.
- A systematic review on equipment reliability shows medical device failures and downtime are commonly linked to reduced service availability and patient-level harms.<sup>3</sup>
- Job dissatisfaction, emotional exhaustion and burnout have also been linked to staff who carry responsibility for equipment maintenance or dealing with frequent device malfunctions.<sup>4</sup>
- Real-world reporting from the NHS demonstrates widespread incidents where ageing or malfunctioning diagnostic and treatment devices caused 3,915 patients harmed and 87 patients being followed by death.<sup>5</sup>
- Reporting faulty endoscopes carry hidden costs: one study found a single breakdown generated ~54 administrative tasks (~9 hours staff time) and ~£325 of efficiency loss, with ~60% of staff reporting a negative morale impact.<sup>2</sup>
- Crucially, to the best of our knowledge, no literature has been published quantifying the burden of endoscope failures on GI service performance (reported monthly incidents, number of procedures affected, impact on tariff income), highlighting a key evidence gap.

## Methods

- A retrospective analysis utilised two years of procedural and tariff data from 126 NHS Trusts, from April 2023 to March 2025.
- In April 2025, a targeted survey of endoscopy staff achieved 60 responses (88% clinical roles), in line with the study's sampling objective.



## References

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- Al Aithan et al (2024) The Mental Load of Equipment Maintenance for Nurses: Overcoming Burnout. *Power Tech Journal Vol* 48 Issue 4
- Goodier & Campbell (2025, June) Thousands harmed and 87 dead after NHS equipment failures in England. *Guardian.* <https://www.theguardian.com/society/2025/jun/09/thousands-harmed-and-87-dead-after-nhs-equipment-failures-in-england>

- The survey gathered estimates on flexible endoscope failures, the number of procedures impacted, and typical postponement durations.
- Participants were from various NHS regions in England, Scotland, and Wales, with the highest representation from London and the East of England.
- Responses were aggregated by role type and combined with national activity and costing data to model the operational and financial impact of rescheduled procedures due to endoscope malfunctions.

## Results

- NHS providers reported an average of 1.94 monthly incidents related to flexible endoscopes failures, each affecting 2 procedures, resulting in 3.9 rescheduled procedures per provider per month.
- Nationally, this equates to 489 procedures rescheduled monthly and a cumulative delay of 1,080 procedure-days, based on a weighted average postponement of 2.21 days.
- The estimated financial impact is £552,112 per month, and £6.6 million per year nationally, in unrealised tariff income.

## Conclusion

- Damaged flexible endoscopes that require repair result in delays, rescheduled procedures, and substantial unrealised tariff income across NHS endoscopy services. Though modest at the provider level, the cumulative national impact is considerable.
- These findings underscore the need for reliable equipment and regular maintenance. Although this analysis did not assess specific causes of equipment failure, variation in service contract providers and other operational factors may play a role, warranting further investigation.

## Limitations

- Data were self-reported by staff, not directly measured, so may be approximate.
- 35% of respondents were from Greater London area. This may have skewed the weighted averages compared to real-world practice across the UK.
- Future research should focus on specific data capture on repair failure rather than weighted survey responses for greater accuracy.