

ASPIRE Featured Measure

Percentage of cases with median tidal volumes less than or equal to 8 ml/kg: PUL 02

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Introduction

ASPIRE (Anesthesiology Performance Improvement and Reporting Exchange) is a national anesthesia quality improvement collaborative that includes 21 sites across Michigan. Michigan-based sites are a core component of ASPIRE and make up almost 1/2 of all participating sites.

A total of 26 measures make up the ASPIRE database. This is the first in a series of articles that share quality improvement initiatives from ASPIRE. With this article we will highlight “PUL 02”, our low tidal volume measure. Specifically, tidal volume goals are $\leq 8\text{cc/kg}$ ideal body weight, and data is pulled from electronic health data to grade compliance throughout the initiative.

Evidence Based Rationale

Use of lung protective ventilation techniques (low tidal volumes and positive end expiratory pressure) should be part of standard anesthetic practice for most cases that require positive pressure ventilation. Several randomized controlled trials, as well as a meta-analysis in 2015 describe the benefit with low versus high tidal volume techniques, and references can be found below.¹⁻⁶

Exclusion criteria for this measure are patients who have an ASA status of 5 or 6, are $< 12\text{yo}$, weigh $< 20\text{kg}$, or have extremes of height, in which case the measure is less applicable. Additional measure details can be found at https://mpog.org/files/quality/measures/PUL-02_spec.pdf.

Results

The first graph below reveals compliance with PUL 02. Each bar represents a different participating clinical site/hospital and sites are ranked from highest to lowest (and anonymized for this article). The goal for this and most ASPIRE measures is 90% compliance, and currently only one center reaches this level. The second graph demonstrates a steady improvement in measure compliance state-wide since data collection began.

Anonymized Performance for PUL 02 Across ASPIRE sites in Michigan

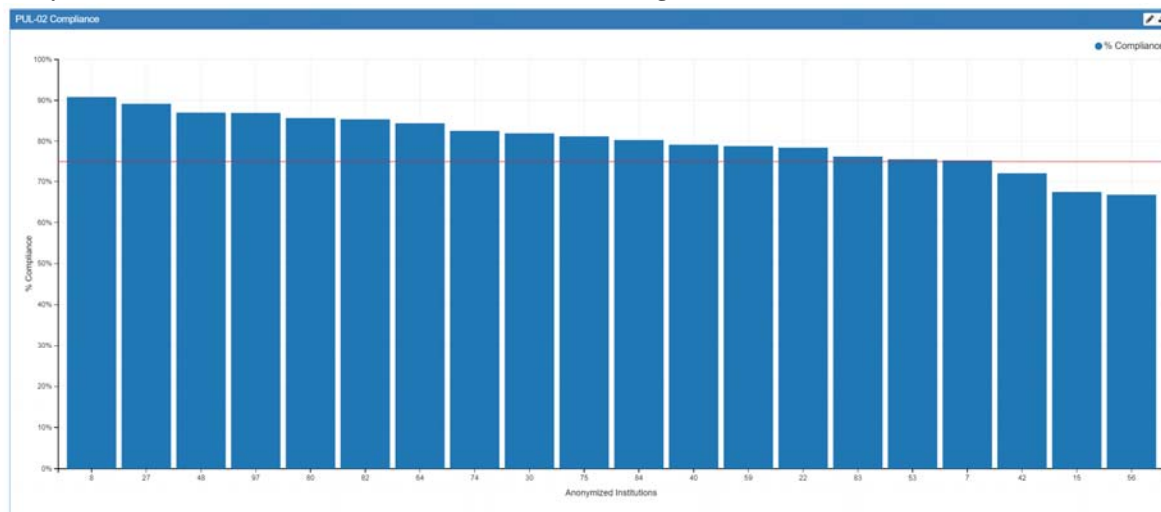


Figure A. Across all ASPIRE sites in Michigan, performance varies from approximately 50 – 90%. Goal performance for this (and most other ASPIRE measures) is greater than 90%.

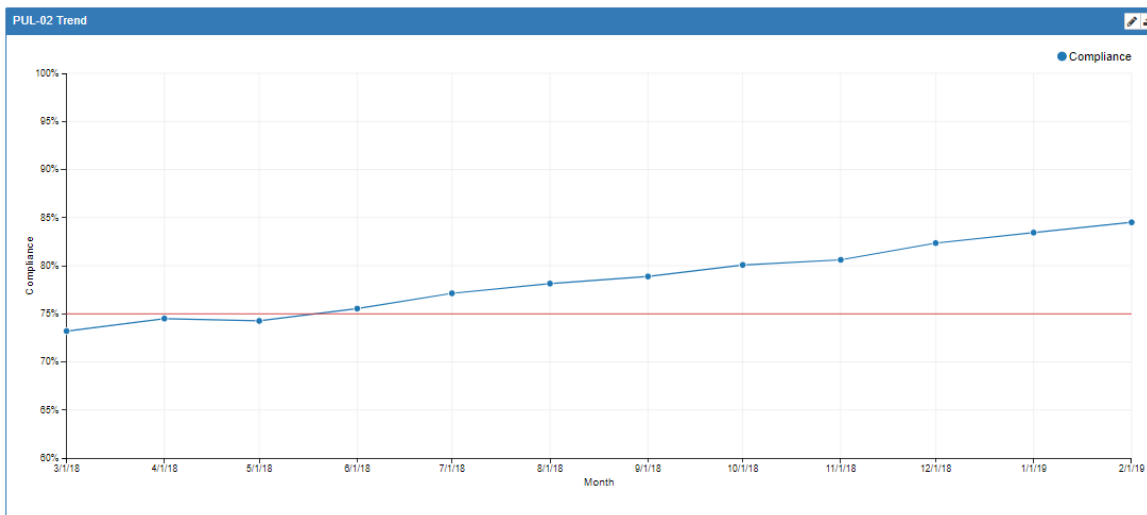


Figure B. Performance trend over the last year for ASPIRE sites in Michigan.

Discussion

ASPIRE sites participating in Michigan (and around the country) have used a variety of quality improvement techniques to improve their performance. These include changes to default settings on anesthesia machines, feedback to individual providers based on performance, and lectures/ didactic sessions. Tools are available from a variety of sources, including our website (<https://mpog.org/quality/toolkits/>).

Given the wide variation in performance with PUL 02 observed across ASPIRE sites, we must continue our efforts to improve compliance with this measure. We are encouraged that overall, performance across ASPIRE sites is improving in the last year, and hope that sites that are not participating in ASPIRE will be able to use this vignette, and access additional information on our website (see links above) to address this important topic.

References

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