Procalcitonin (PCT) is a hormone precursor that has been identified as a marker for bacterial infections. Procalcitonin increases as the body mounts an inflammatory response against infection, then returns to its normal range once the inflammatory response subsides. Studies have shown that monitoring procalcitonin levels may assist in antibiotic discontinuation. Based on these studies, a baseline level should be drawn at the time an infectious diagnosis is considered, as close to the first dose of antibiotics as possible. Follow-up blood levels should be drawn approximately every 48 hours thereafter until levels have normalized. Once levels reach designated threshold values, antibiotic discontinuation should be considered. It is important to ensure that a biomarker, such as PCT, is used optimally to provide the greatest benefit to a patient’s care as well as to ensure that this test is actionable and value is added.

### STUDY DESIGN

- **Primary outcome**: Number of cases with optimally drawn PCT levels defined as ≥80% from its peak value or reached a threshold of <0.25 mcg/L or <0.5 mcg/L.
- **Secondary outcome**: Number of cases with all antibiotics discontinued within 36 hours after PCT decreased ≥70% from its peak value or reached a threshold of <0.25 mcg/L or <0.5 mcg/L.

### DISCUSSION

Initial PCT levels were drawn within 36 hours of antibiotic initiation approximately 96% of the time, demonstrating that the large majority of baseline levels were checked appropriately. Yet, the average number of PCT drawn per case was 1.6 levels, suggesting that most cases only had a single level drawn and that follow-up levels were not being ordered. Of those with multiple PCT measurements, only 23% had levels consistently drawn 24 to 72 hours apart, as literature would suggest. In our analysis, we found that in approximately 32% of cases antibiotics were discontinued after thresholds were met, suggesting that PCT is not being relied upon to support early antibiotic discontinuation. This evaluation may have identified a nationwide opportunity to provide guidance on the appropriate timing of follow-up levels, in addition to a significant opportunity to encourage safe discontinuation of antibiotics when threshold is achieved.

### REFERENCES