

Turnaround Time as a Quality Indicator: Which Interval the Requesting Clinician Actually Experiences

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Abstract

Turnaround time is one of the most widely reported laboratory quality indicators, yet the interval conventionally measured -- receipt of sample in the laboratory to result verification -- is not the interval a requesting clinician actually experiences, which runs from the decision to order the test to the result appearing where the clinician will see it. We measured both intervals in parallel across 14,206 emergency department chemistry orders at three hospitals over six months and quantified the gap between them. The laboratory-only interval met the target of under sixty minutes for 91.4% of orders, while the clinician-experienced interval, which additionally captured specimen collection delay and results system display latency, met the same sixty-minute target for only 68.2% of the same orders. Specimen collection delay -- the time between order placement and sample arrival at the bedside phlebotomy round -- accounted for the largest share of the gap. We argue that a laboratory reporting only the conventional interval risks materially overstating service performance as experienced by the clinicians it serves.

Keywords: Turnaround time; Quality indicator; Emergency department; Laboratory performance; Total testing process

Introduction

Turnaround time is reported by nearly every clinical laboratory as a headline quality indicator, almost always measured as the interval between sample receipt in the laboratory and result verification -- an interval fully within the laboratory's own operational control and therefore a natural choice for internal quality monitoring.^[1] This interval, however, is not the one a requesting clinician experiences: the clinician's own sense of turnaround time runs from the moment they place the order to the moment the result appears somewhere they will see it, an interval that additionally includes specimen collection delay, transport time, and results system display latency, none of which the conventional metric captures.^[2]

We measured both intervals in parallel across three hospital emergency departments to quantify the gap between the laboratory-reported turnaround time and the

clinician-experienced interval, on the premise that a laboratory reporting only the narrower interval may be presenting a materially more favourable picture of service performance than clinicians actually perceive.

The gap between these two intervals is not merely an academic distinction: a clinician deciding whether to wait for a laboratory result before making a treatment decision, discharging a patient, or escalating care experiences the full order-to-display interval regardless of how the laboratory internally defines and reports its own turnaround time, and a persistent mismatch between reported and experienced performance can erode clinician trust in laboratory quality reporting more broadly, even where the laboratory's own processing performance is genuinely excellent.^[10]

We selected emergency department chemistry ordering specifically because this setting combines high clinical

time-sensitivity with a sufficiently high order volume to detect a meaningful gap statistically, and because emergency department turnaround time is among the most frequently cited and externally scrutinised laboratory quality indicators, making it a natural setting in which to examine whether the conventionally reported interval accurately reflects the clinician experience it is implicitly understood to represent.

Methods

Timestamps were captured at four points for 14,206 chemistry orders placed from three emergency departments over six months: order placement, specimen collection, sample receipt in the laboratory, and result verification. Results system display latency -- the delay between verification and the result becoming visible in the clinical information system the requesting clinician uses -- was measured separately via system audit logs.^[3] The conventional laboratory-only interval (receipt to verification) and the clinician-experienced interval (order to display) were both calculated for every order and compared against the same sixty-minute target used at all three sites.

Order placement and specimen collection timestamps were captured through the hospital's electronic order entry and point-of-care barcode scanning systems respectively, sample receipt was captured automatically at the laboratory accessioning station, and result verification was captured at the moment a laboratory scientist or automated verification rule released the result in the laboratory information system.^[4]

Orders with any missing timestamp across the four capture points, representing 3.1% of orders placed during the study period, most often due to a specimen collection scan being missed or a manual point-of-care entry error, were excluded from the final analysis rather than imputed, to avoid introducing any assumption about the missing interval's likely duration into the reported results.

All three sites used broadly comparable chemistry analyser platforms and used the same sixty-minute target for emergency department chemistry turnaround time in their own internal quality reporting prior to this study, allowing site-level results to be compared on a reasonably consistent basis without needing to adjust for materially different baseline analytical platforms or locally defined targets.

Results

The laboratory-only interval met the sixty-minute target for 91.4% of orders (median 34 minutes), consistent with the target performance reported by all three sites in routine quality reporting. The clinician-experienced interval met the same target for only 68.2% of the same orders (median 58 minutes), a substantially lower on-target rate for the identical set of orders measured only more completely.

Specimen collection delay -- order placement to sample collection at the bedside -- accounted for the largest single component of the gap, contributing a median of 19 minutes and

varying considerably by time of day, with the longest delays during nursing shift changes and periods of high department occupancy.^[4] Results system display latency contributed a smaller but non-trivial median of 4 minutes, occasionally extending to over 20 minutes during system load peaks coinciding with shift-change order bursts.^[5]

Transport time, from specimen collection to receipt in the laboratory, contributed a further median of 11 minutes, with considerable variability between the two sites using a pneumatic tube delivery system and the one site still relying on manual courier transport, the manual-courier site showing both a longer median transport time and greater variability than either pneumatic-tube site.^[6]

Breaking results down by site individually, the clinician-experienced on-target rate ranged from 61.3% to 74.8% across the three sites despite all three reporting a laboratory-only on-target rate within a narrower 89.7% to 93.1% range, indicating that the gap between the two intervals, while present at every site, varied in magnitude enough that a laboratory-only comparison across sites would meaningfully understate the true variation in clinician-experienced service quality between them.

Interval Component	Median (min)	On-Target Rate
Order to collection	19	n/a (component)
Collection to receipt	11	n/a (component)
Receipt to verification	34 (total)	91.4%
Verification to display	4	n/a (component)
Order to display (total)	58	68.2%

Table 1: Median Interval Components and On-Target Rates, Laboratory-Only Versus Clinician-Experienced Turnaround Time (n=14,206).

Discussion

A 23-percentage-point difference in on-target performance between the two intervals, measured on the identical set of orders, demonstrates that the choice of interval materially changes the quality picture a laboratory presents, and that the conventional laboratory-only metric systematically favours the laboratory's own performance over the interval that actually determines how quickly a clinical decision can be made.^[6] This is not a criticism of the laboratory-only metric's validity for internal process monitoring, where it remains useful and appropriately within the laboratory's direct control, but of using it as the sole reported indicator of clinical service quality.

Specimen collection delay's dominant contribution to the gap points to an improvement target largely outside the laboratory's own operational boundary, requiring collaboration with nursing and phlebotomy staffing models rather than a purely laboratory-side intervention; several published turnaround time improvement studies report exactly this pattern, with laboratory-side process improvement alone producing diminishing returns once the pre-analytical, extra-laboratory components of the total interval come to dominate the gap.^{[7][8]}

We recommend that laboratories reporting turnaround time as a quality indicator report both intervals side by side rather than the conventional interval alone, since reporting only the narrower interval risks obscuring exactly the pre-analytical delay most amenable to targeted, cross-department improvement work.^{[9][10]}

Scalability of the Measurement Approach to Other Analytes

This study focused specifically on chemistry orders, and it is worth briefly considering whether and how the dual-interval measurement approach demonstrated here would need to be adapted for other analyte categories commonly ordered from the emergency department.

Haematology and coagulation testing generally share the same specimen collection and transport workflow as chemistry testing at most sites, including the three studied here, suggesting the specimen-collection and transport-time components of the gap identified in this study would likely transfer with similar magnitude to these analyte categories, though analytical processing time itself differs between chemistry and haematology platforms and was not separately examined in this study.^[1]

Point-of-care testing, where available for selected emergency department analytes, bypasses the specimen collection delay and transport time components entirely by design, and comparing the clinician-experienced interval for a point-of-care-eligible analyte against the same analyte measured through the core laboratory pathway would provide a useful further quantification of exactly how much of the gap identified in this study is attributable to the core-laboratory pathway specifically versus being an unavoidable feature of any blood-sample-based testing approach.

Clinical Significance of the Twenty-Three-Percentage-Point Gap

A 23-percentage-point difference in on-target performance between two measures of what is nominally the same clinical event is a substantial gap in absolute terms, and it is worth translating this into terms closer to the clinical decisions it affects rather than leaving it as an abstract performance statistic.

For a clinician managing an emergency department patient whose disposition decision, admission, discharge, or further investigation, depends on a chemistry result, the laboratory-only metric's 91.4% on-target rate implies that in roughly nine out of ten cases the clinician should expect a result within the hour of sample arrival at the laboratory; the clinician-experienced metric's 68.2% on-target rate implies that, from the clinician's own perspective starting at the moment they placed the order, this same expectation holds for only about two in every three cases.^[3]

This difference in practical expectation matters directly for how clinicians plan their own workflow around a pending result, whether to hold a bed, delay a decision, or proceed on clinical

grounds alone while awaiting confirmation, and a persistent mismatch between the expectation set by laboratory-reported performance and the reality clinicians actually experience can itself degrade clinical workflow efficiency independent of the underlying delay.

Variation by Time of Day and Shift Pattern

The finding that specimen collection delay varied considerably by time of day, with the longest delays during nursing shift changes and periods of high department occupancy, warrants further discussion given its direct relevance to targeted improvement planning.

Nursing shift-change periods, occurring predictably at fixed times each day at all three sites, showed specimen collection delays roughly double the overall median at each site individually, consistent with the intuitive explanation that handover responsibilities temporarily reduce the nursing capacity available for phlebotomy rounds during these specific windows.^[4]

High department occupancy periods, less predictable in timing than shift changes but identifiable in retrospect from each site's own occupancy records, showed a similar pattern of extended specimen collection delay, plausibly reflecting competing demands on nursing time during periods when more patients require simultaneous attention across a range of competing clinical priorities, phlebotomy among them.

Both patterns suggest that specimen collection delay is not primarily a fixed capacity problem but a time-varying one, concentrated in specific, identifiable windows, which in turn suggests that targeted staffing adjustments during shift changes and high-occupancy periods specifically, rather than a uniform across-the-day staffing increase, may be the more efficient improvement approach for sites facing a similar pattern.

Comparison with Previously Published Total Testing Process Studies

The gap this study quantifies between a laboratory-only interval and a more complete, clinician-experienced interval is consistent with, and adds quantitative precision to, a broader literature on the total testing process that has long argued laboratory turnaround time reporting understates the interval clinically relevant to patient care.

Early total testing process literature identified the pre-analytical phase broadly, everything occurring before sample receipt in the laboratory, as the phase most prone to delay and error across clinical laboratory testing generally, a pattern this study's finding that specimen collection delay accounted for the single largest component of the clinician-experienced gap is directly consistent with.^{[2][7]}

Several previous turnaround time studies have reported order-to-result intervals similar in concept to our clinician-experienced interval, but fewer have measured both the conventional and the more complete interval in parallel on the

same set of orders at multiple sites, allowing the direct, within-study quantification of the gap between them that this study provides.^{[8][9]}

Interaction with Existing Quality Accreditation Frameworks

Laboratory accreditation standards in most jurisdictions already require turnaround time monitoring as part of routine quality management, and it is worth briefly addressing how the dual-interval approach proposed in this study relates to those existing accreditation requirements rather than existing as an entirely separate, additional reporting burden.

Most accreditation standards specify that turnaround time be monitored and that corrective action be taken where performance falls outside a defined target, without prescribing precisely which interval, laboratory-only or more broadly defined, must be used for this purpose, leaving laboratories latitude to adopt the more complete clinician-experienced interval as their primary accreditation-facing turnaround time metric without this representing a departure from, or conflict with, existing accreditation requirements.^[9]

We would suggest that laboratories already meeting accreditation requirements using the conventional laboratory-only interval consider adopting the clinician-experienced interval as an additional, rather than a replacement, metric at least initially, preserving continuity with historical performance trending on the conventional metric while building the additional data history needed to eventually support the clinician-experienced interval as a primary accreditation-facing measure in its own right.

Site-Level Differences in Transport Method and Their Operational Implications

The site-level difference in transport time between the two pneumatic-tube sites and the single manual-courier site, introduced briefly in Results, merits fuller discussion given its direct relevance to any site considering a transport method change.

The manual-courier site's longer and more variable transport time is consistent with a substantial published literature demonstrating that pneumatic tube systems, where properly validated for sample integrity, reduce and stabilise transport time relative to manual courier transport across a range of specimen types and hospital layouts.^[6]

We did not identify any difference in post-analytical sample quality indicators, haemolysis rate or repeat-sample request rate, between the pneumatic-tube and manual-courier sites during the study period, consistent with properly validated pneumatic tube transport not introducing a meaningful sample-quality trade-off against its transport-time advantage, though this study was not specifically powered to detect a small difference in these secondary quality indicators.

For the manual-courier site specifically, the transport-time component of the clinician-experienced gap identified in this study represents a concrete, quantified case for considering pneumatic tube installation, allowing that site's own quality-improvement business case to draw on this study's within-system comparative data rather than relying solely on the external published literature cited above.

Relationship Between Reported Metrics and Organisational Incentive Structures

A further, somewhat more structural consideration raised by this study's findings concerns how organisational incentive structures interact with the choice of reported turnaround time metric.

Where laboratory staff performance, departmental funding allocation, or external benchmarking comparisons are tied to the conventional laboratory-only interval specifically, an organisation has a structural incentive to continue reporting that narrower interval even where the clinician-experienced interval would give a more complete picture, since a less favourable metric could, depending on local governance arrangements, affect resourcing or performance evaluation in ways a laboratory may be reluctant to invite voluntarily.^[10]

We would argue that this is precisely why external stakeholders, hospital leadership, accreditation bodies, and clinical department heads, rather than laboratories alone, should drive adoption of dual-interval reporting, since a change that could be perceived as unfavourable to the reporting department is more likely to be sustained when requested or required by an external stakeholder with a genuine interest in the clinician-experienced interval specifically, rather than left to voluntary adoption by the laboratory alone.

Economic Considerations for Closing the Gap

Addressing each component of the clinician-experienced gap identified in this study carries a different cost profile, and sites prioritising improvement investment should weigh these differences explicitly.

Addressing specimen collection delay through additional phlebotomy or nursing staffing during the specific shift-change and high-occupancy windows identified above represents a recurring staffing cost, generally the largest ongoing cost of the three components discussed in this study, but one that attacks the single largest contributor to the overall gap.^[7]

Addressing transport time through pneumatic tube installation represents a one-time capital cost followed by comparatively modest ongoing maintenance costs, a cost profile that may be more readily justified where, as at the manual-courier site in this study, a clear and quantified transport-time improvement opportunity has been identified.

Addressing display latency through information system capacity improvements targeted at the specific shift-change load peaks identified above likely represents the lowest-cost intervention of the three, since it does not require additional

clinical staffing or capital equipment, and may represent an efficient first step for sites seeking a lower-cost initial improvement before committing to the larger staffing or capital investments the other two components would require.

Why Results System Display Latency Matters Despite Its Smaller Median Contribution

Although results system display latency contributed a smaller median delay than either specimen collection delay or transport time, its occasional extension to over 20 minutes during system load peaks deserves separate attention, since a predictable, load-dependent delay of this kind is both detectable and potentially correctable through information-system capacity planning.

The shift-change order bursts associated with the longest display latency periods are a predictable, recurring pattern rather than a random occurrence, meaning the information system's ability to handle peak concurrent result-posting load during these specific, foreseeable windows is a tractable target for improvement distinct from the specimen-collection and transport-time improvements discussed elsewhere in this report.^[5]

We would recommend that any laboratory measuring the clinician-experienced interval for the first time pay particular attention to whether display latency shows this kind of load-dependent pattern locally, since, unlike the broader staffing and cross-department collaboration required to address specimen collection delay, information-system capacity improvements are often achievable through the laboratory's own information technology governance channels without requiring the same degree of external departmental coordination.

Reflections on Measurement as a Precondition for Improvement

A broader methodological point implicit throughout this study is worth stating explicitly in closing this section: a delay that is not measured cannot be reliably targeted for improvement, and this study's core contribution is as much about demonstrating that the clinician-experienced interval can be measured in routine practice as it is about the specific gap magnitude reported here.

Before this study, each of the three participating sites reported only the conventional laboratory-only interval, and specimen collection delay, ultimately found to be the largest single contributor to the clinician-experienced gap, was not separately visible in any routine quality report at any of the three sites prior to this study's dedicated timestamp capture exercise.^[2]

This observation underscores a more general lesson for laboratory quality improvement: the components of a clinical process most in need of improvement are not necessarily the components a laboratory's existing metrics already make visible, and a willingness to measure beyond the laboratory's own conventional operational boundary, as this study did by capturing order placement and specimen collection timestamps

from systems outside the laboratory's direct operational control, is often a necessary precondition for identifying where the largest improvement opportunity actually lies.

Patient Safety Implications of the Clinician-Experienced Gap

Beyond its implications for quality reporting accuracy, the gap this study identifies carries direct patient safety relevance that deserves explicit attention.

A clinician who believes, on the basis of laboratory-only reporting, that results are available within sixty minutes for over nine in ten orders may plan clinical workflow, including decisions about when to reassess a patient or escalate care in the absence of a result, around an expectation that does not match the roughly two-in-three actual on-target rate this study found from the clinician's own vantage point.^[3]

This mismatch could plausibly contribute to delayed recognition that an expected result is overdue, since a clinician calibrated to the more optimistic laboratory-only figure has less reason to proactively follow up on a delayed result than a clinician aware of the more realistic clinician-experienced figure, though this study did not directly measure follow-up or escalation behaviour and this connection remains an inference rather than a directly demonstrated finding.

We would nonetheless argue that accurate calibration of clinician expectations around realistic result timing, supported by transparent dual-interval reporting, is itself a patient safety measure, independent of any specific improvement subsequently made to the underlying intervals, since clinicians working from inaccurate expectations about result timing are less well positioned to make sound real-time decisions about when to proceed on clinical grounds alone versus continuing to await a pending result.

Interaction with Electronic Health Record Alerting Systems

Several sites have begun exploring automated alerting for overdue results within their electronic health record systems, and this study's findings have direct relevance to how such alerting should be configured.

An overdue-result alert configured against the conventional laboratory-only interval would, on the basis of this study's findings, substantially underestimate how often a clinician is actually waiting beyond a reasonable expectation for a result, since such an alert would not account for specimen collection delay or display latency, the two components this study found contribute materially to the total clinician-experienced interval.^[5]

We would recommend that any overdue-result alerting system be configured against the order-to-display interval specifically, using the same timestamp capture points described in Methods, rather than against the narrower receipt-to-verification interval, so that an alert accurately reflects whether the clinician's own experienced wait has genuinely

exceeded a reasonable threshold.

Implementation Considerations for Adopting Dual-Interval Reporting

Moving from conventional laboratory-only turnaround time reporting to the dual-interval reporting this study recommends requires some practical implementation groundwork that we outline here for laboratories considering the change.

Capturing the additional timestamps needed for the clinician-experienced interval, specifically order placement and specimen collection, requires that the ordering and point-of-care collection systems used locally are each capable of recording an accurate timestamp and that those timestamps can be linked reliably to the same order as it progresses through the laboratory's own systems, an integration requirement that varies considerably in complexity depending on the specific electronic ordering and point-of-care systems a given hospital uses.^[4]

Where this integration already exists, as it did at all three sites in this study, dual-interval reporting can be implemented largely as a reporting and dashboard change rather than requiring new data capture infrastructure; where it does not yet exist, establishing it may itself be a worthwhile quality improvement project independent of the turnaround time reporting question, since accurate order-to-collection timestamp capture has value for other pre-analytical quality monitoring purposes beyond turnaround time specifically.

Applicability to Non-Emergency Department Settings

Although this study was conducted exclusively in emergency department settings, the dual-interval measurement principle it demonstrates applies, with some modification, to other clinical settings where turnaround time is monitored as a quality indicator.

Inpatient ward testing shares the specimen-collection and transport-time components examined in this study, though ward phlebotomy rounds typically follow a scheduled rather than on-demand pattern, meaning the specimen collection delay component would likely show a different, more schedule-driven pattern than the shift-change and occupancy-driven pattern found in the emergency department setting studied here.^[8]

Outpatient and ambulatory testing settings generally involve a longer overall interval dominated by appointment scheduling rather than by the minute-to-minute delays examined in this study, making the specific components and magnitudes reported here less directly transferable to that setting, though the underlying principle, that a clinician-experienced interval can differ substantially from a laboratory-only interval, plausibly still applies in modified form.

We would encourage laboratories serving these other settings to apply the same parallel dual-interval measurement approach used in this study to their own specific context, rather than assuming the magnitude of gap found here for emergency department chemistry testing applies unchanged to a setting with

materially different ordering and collection workflows.

Governance and Reporting Recommendations

We recommend that laboratories adopting dual-interval reporting present both intervals together in routine quality reports and dashboards, rather than relegating the clinician-experienced interval to a supplementary or occasional analysis, so that laboratory leadership, hospital management, and clinical stakeholders share a consistent, complete picture of service performance at every reporting cycle.

Where the gap between the two intervals is substantial, as found at all three sites in this study, we further recommend that improvement governance explicitly assign ownership of each interval component to the service best positioned to address it, nursing and phlebotomy staffing for specimen collection delay, logistics or facilities for transport time, and information technology for display latency, rather than defaulting all turnaround-time improvement responsibility to the laboratory alone simply because turnaround time is conventionally reported as a laboratory quality indicator.^[10]

Clinician Survey of Awareness and Expectations

Alongside the timestamp-based measurement described in Methods, we conducted a brief informal survey of emergency department physicians and advanced practice clinicians at all three sites to gauge awareness of the gap between reported and experienced turnaround time, offering a qualitative complement to the quantitative findings reported above.

Most surveyed clinicians reported being aware, from direct personal experience, that results often took noticeably longer to appear than the turnaround time figures quoted in laboratory quality reports, but few were aware of the specific laboratory-only versus clinician-experienced distinction this study formalises, generally attributing the discrepancy to vague impressions of laboratory delay rather than to the specific, quantifiable specimen-collection and display-latency components this study identified.^[3]

This finding suggests that clinicians' intuitive sense that reported turnaround time understates their actual experience was, in this study's setting, directionally correct even without access to the detailed component breakdown this study provides, and that formal dual-interval reporting would give clinicians language and data to support an intuition they already held rather than introducing an entirely new concern.

Study Limitations

This study's findings should be interpreted alongside several limitations.

The three participating sites, while differing in transport method, shared broadly similar chemistry analyser platforms and emergency department operating models, and the magnitude of the gap reported here may differ, in either direction, at sites with materially different pre-analytical infrastructure, staffing models,

or information systems than those studied.

The 3.1% of orders excluded for missing timestamps were not randomly distributed across the four capture points, with specimen collection timestamp misses somewhat more common during periods of high department occupancy, the same periods associated with the longest specimen collection delays, raising the possibility that the reported median specimen collection delay could modestly underestimate the true delay if excluded orders disproportionately represented the longest-delay cases.

Baseline Data Quality and Completeness Considerations

The reliability of the dual-interval comparison reported in this study depends on the completeness and accuracy of timestamp capture at each of the four measurement points, and it is worth describing the data quality checks applied before analysis in more detail than the brief exclusion criteria noted under Methods.

Each timestamp source, electronic order entry, point-of-care barcode scanning, laboratory accessioning, and verification logging, was cross-checked for internal consistency, confirming that each order's four timestamps occurred in the expected chronological sequence, order placement before collection, collection before receipt, receipt before verification, with any order showing an impossible out-of-sequence timestamp flagged for manual review and, where the discrepancy could not be resolved, excluded from the final analysis alongside the missing-timestamp exclusions already described.^[4]

This consistency checking identified a small number of additional excluded orders, fewer than the missing-timestamp exclusions and not separately quantified here, generally attributable to clock synchronisation discrepancies between the different systems recording each timestamp rather than to genuine data errors, underscoring the practical importance of synchronised system clocks for any laboratory attempting a similar dual-interval measurement exercise.

Future Directions

A natural extension of this study would be a prospective intervention trial testing whether explicit dual-interval reporting, combined with the component-specific governance ownership recommended above, measurably narrows the gap between the two intervals over time, directly testing whether the improved visibility this study argues for translates into improved clinician-experienced performance rather than remaining only a reporting change.

Extending this parallel dual-interval measurement approach to other high-volume, time-sensitive testing contexts beyond emergency department chemistry, such as inpatient ward blood gas testing or outpatient same-day results pathways, would help establish whether the magnitude of gap reported here for the emergency department setting specifically generalises to other clinical contexts with different pre-analytical workflows and

time sensitivity profiles.

Practical Checklist for Laboratories Adopting Dual-Interval Measurement

As a closing practical summary, we offer the following checklist for a laboratory considering adoption of the dual-interval measurement and reporting approach described in this study.

Confirm that order placement and specimen collection timestamps are captured reliably and can be linked to the corresponding laboratory accessioning and verification timestamps for the same order, and that system clocks across all contributing systems are synchronised to a common reference, since clock synchronisation issues were, as noted above, the main source of orders excluded in this study's own consistency checking.

Establish a clear ownership structure for each interval component before beginning routine dual-interval reporting, so that a newly visible gap between the two intervals translates into assigned improvement responsibility rather than becoming a source of unproductive dispute about which department is accountable for which portion of the total interval.

Begin dual-interval reporting with a defined baseline measurement period, as this study did, before attempting any targeted improvement intervention, so that subsequent improvement efforts can be measured against an accurate, component-level baseline rather than against the single, narrower laboratory-only figure most sites currently use.

Conclusion

The clinician-experienced turnaround time interval met a sixty-minute target for only 68.2% of emergency department chemistry orders, substantially below the 91.4% on-target rate reported by the conventional laboratory-only interval measured on the same orders. Specimen collection delay accounted for the largest share of the gap. Laboratories should report both intervals to avoid materially overstating clinical service performance relative to what requesting clinicians actually experience.

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