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Accepted for publication April 24, 2019.

The authors have no relevant financial interest in the products or companies described in this article.

doi: 10.5858/arpa.2019-0222-LE

## Clinical Governance Should Be a Priority When Care Delivery Systems Are Disrupted

*To the Editor*.—In their recent paper, Rogers et al[1] highlighted the increased costs that occur when a local laboratory testing system is disrupted and outpatient tests are sent to a commercial laboratory. We previously described how operational efficiencies should always be managed by clinical governance and should represent a tool for improving clinical effectiveness.[2–4] Here, we present our experience with the conversion of a laboratory at an infant-maternity hospital (IMH) according to the hub-and-spoke model,[5] and the impact on the given service.

Three years ago, the IMH was incorporated into our health care system, which already included 3 other hospitals within the urban area of Milan. The laboratory of one of them (the "Luigi Sacco" academic hospital) acted as the hub. From April 2017, all outpatient tests from IMH were delivered to the hub, where 1 core laboratory and 5 specialized sections processed all requests.[3] This decreased the average cost per test from €2.7 (IMH) to €0.7 (hub). Once complete, the laboratory reports are digitally signed and published in the patient's electronic health record (EHR). In 2018, 137 638 outpatient reports were released by the hub, 88.9% (122 299 of 137 638) published on the EHR within 180 minutes from completion. Longer publication time was explainable by repetition of measurements, lack of samples for ordered tests, or contact with the front desk to confirm the request appropriateness according to sex, age, or diagnostic question.

To evaluate the quality of the service offered by the hub to IMH outpatients, we compared the number of reports released within 180 minutes after completion related to the outpatients directly belonging to the hub blood collection center (in 2018, 76 930) with those belonging to the IMH (49 534). A PDF of the final report was released within 180 minutes for 90.4% (69 609 of 76 930) of hub outpatients and for 86.7% (42 943 of 49 534) of IMH outpatients, respectively. Although the difference was statistically significant ($\chi^2$, $P < .001$), we considered the overall performance of the offered service quite good. The analysis of time from the registration of outpatients and the check-in of their samples in the recipient laboratory for the same tests evaluated by Rogers et al,[1] that is, aspartate aminotransferase, C-reactive protein, erythrocyte sedimentation rate (ESR), low-density lipoprotein cholesterol, phosphate, and white blood cell count (WBC), showed that samples coming from IMH had a median delay of 50 minutes (interquartile range, 46–63 minutes) when compared with hub internal samples, compatible with the courier transportation schedule not affecting the samples arriving from the hub collection center. By considering the previously published 90th percentile turnaround times (TATs) of our hub structure,[3] we can conclude that in about 85% (42 100 of 49 534) of IMH outpatients, the time from phlebotomy to result posting in the EHR for WBC was less than 4.7 hours and for ESR was less than 5.3 hours, markedly better that the TATs reported by Rogers et al.[1] Therefore, our organization based on principles of clinical governance[2,3] provides an effective health care system covering a large urban area in which the quality standards are overlapping and does not create a fragmented patchwork with different levels of service to end users.

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Accepted for publication May 17, 2019.

The authors have no relevant financial interest in the products or companies described in this article.

doi: 10.5858/arpa.2019-0166-LE

*In Reply*.—The care delivery system described in Milan, Italy, is an outstanding example of how the continuity of care in laboratory medicine provides timely results in a multi-institutional system. Additionally, the authors describe decreased cost per test by close to 75% in the integrated model when the testing is performed at a central laboratory.

The economic drivers that impact our ability to have a hub-and-spoke model relate to managed-care contracting, which either mandates or favors routing outpatient tests to external, large-volume reference laboratories. Costs per test at the commercial laboratories are presumed to be very low, but the test cost does not account for the hidden costs of maintaining the system when the testing goes outside the hospital system.

Optimization of testing within a health care system, as described in Milan, would mandate that the current economic drivers governing those of us "across the pond" be fundamentally changed.

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Accepted for publication May 20, 2019.

doi: 10.5858/arpa.2019-0230-LE