Genetic Testing Utilization Management: Saving time, Saving Money, and Maximizing Clinical Utility for Patients-A Commercial Lab Experience.

Background: Utilization management (UM) is a topic of increasing importance in the genetics field. UM can be defined briefly as optimizing the medical testing process to ensure the right test is run for the right patient at the right time, at the lowest cost possible. Various organizations have developed a UM review process to promote cost-containment through appropriate allocation of healthcare dollars. Prior UM studies from academic and managed care settings have demonstrated that involvement of a genetics professional in test order review leads to cost savings for the performing institution and payors. However, limited information is available from a commercial setting. This study reports UM data from the perspective of a high-volume commercial genetic testing laboratory with a broad-based testing menu and patient population.

Methods: From January 2018 through September 2019, our team of 8 genetic counselors reviewed 41 data points for each incoming order as part of our standard test accessioning process. Information provided by the ordering clinician on the requisition form and supporting clinical documents was evaluated, and adjustments made to each order were prospectively curated. Areas of modification to orders included but are not limited to updating demographic information, canceling redundant test procedures or gene content, and correcting test orders where necessary content was not reflected in the order. Cost savings were calculated based on the average internal laboratory cost of a multigene panel, or the personnel cost of report generation. For the purposes of this study, we define clinical utility as matching the test order to the clinical presentation.

Results: 207,578 consecutive cases were reviewed over the study period. 61% of all cases required updates to the test order. 12,039 of these updates resulted in improved laboratory efficiency, including 1,138 cases with canceled tests and 10,901 cases where at least one redundant laboratory procedure was canceled. Improved efficiency was also demonstrated by updating the orders to the appropriate assay platform and correcting nomenclature for specific site analyses, 102 cases and 3,814 cases, respectively. We identified 3,134 test entry errors, or instances where the test entered at sample receipt did not accurately reflect the clinical needs of the patient or wishes of the provider. 100 duplicate orders, in which the same test was ordered for the same patient by the same provider, were identified and canceled. Lastly, demographic updates prevented 1,583 revised reports. Collectively, optimizing test orders in these ways resulted in laboratory cost savings of approximately $243,000 over the study period. 4,010 test orders were updated to increase clinical utility, including incorporation of past test results, communication of variant classification discrepancy, addition of STAT testing requests based on pending surgery and more. 11,863 results were reviewed by genetic counselors rather than certified laboratory scientists, to ensure reporting was tailored to match the clinical history provided.

Discussion: These outcomes quantify the impact of a UM program within a commercial genetic testing laboratory. In addition to financial benefit, clinical utility is also improved, ensuring the most clinically relevant results are delivered to the patient and ordering provider. Genetic counselors are uniquely qualified to step into this utilization management role as advocates for patients, experts in both the conditions tested for and the testing platforms used in the laboratory, and stewards of responsible testing from both a cost and clinical standpoint. Our

findings demonstrate the crucial role commercial laboratories can play in promoting cost savings and reducing waste in medical spending, thereby increasing access to genetic testing.