INTRODUCTION

• Genomic characterization has been increasingly used to guide treatment decisions, especially in patients with advanced disease.

• Next-generation sequencing-based genetic testing is one of the key drivers of precision medicine in US oncology practices.

• As of August 2017, there were approximately 75,000 genetic and diagnostic tests on the market, representing approximately 10,000 unique test types and increasing at about 10 to 15 new tests daily.

• However, there are only a few commercial laboratories currently performing TMB and MGPT testing.

METHODS

• Design: This was a retrospective cohort analysis of the Concert claims database, a commercially licensed data set containing testing claims for more than 10 million commercially insured lives from all 50 states.

• Sample: Commercially insured individuals living in the United States, between the ages of 20 and 65, and present in at least 1 year of the data set spanning July 1, 2017 to June 30, 2018 were analyzed using proprietary claims-based CPT code algorithms.

• TMB and MGPT tests were included in this analysis.

• Inclusion Criteria: Commercially insured individuals living in the United States, between the ages of 20 and 65, and present in at least 1 year of the data set spanning July 1, 2017 to June 30, 2018.

• Exclusion Criteria: Patients under the age of 20 were excluded because of privacy concerns.

• Study Outcomes:

• Overall utilization rates for TMB and MGPT tests were 0.14 and 1.58 tests per 1,000 members per year, respectively.

• Overall utilization rates for both TMB and MGPT by region (Mid-Atlantic, Midwest, Northeast, South, and West) were 0.10, 0.13, 0.14, 0.15, and 0.16 per 1,000 members per year, respectively (Table 1).

RESULTS

• We analyzed 764,236 medical claims related to genetic testing in adults and algorithmically matched claims to specific tests marketed by US CLIA-certified labs.

• Tumor coding combinations were used for both TMB and MGPT tests, with the maximum number of billed CPT codes for tests evaluating TMB ranging from 34 (breast cancer) to 47 (lung cancer) and from 43 (ovarian cancer) to 85 (prostate cancer) for MGPT tests (Table 1).

• CPT coding variability, measured as the number of unique CPT signatures across medical claims, was found to be lower for TMB tests compared with MGPT in patients diagnosed with lung (213 vs 494), colorectal (214 vs 447), and breast (121 vs 205) cancers.

• The CPT coding variability observed in this study highlights the need for standardization of coding guidelines to achieve a value-based practice system and improve the quality of patient care.

• There is an immediate need to understand the real-world usage of diagnostic testing and its impact on treatment patterns, healthcare resource costs, and utilization through integration of diagnostic testing products with medical claims.

• The objectives of this analysis were (1) to characterize the variation in CPT coding usage for tumor mutation burden (TMB) and multi-gene tumor panel testing (MGPT) tests and (2) to explore the ability of this variation to measure real-world utilization of TMB and MGPT tests.

• The following variables were measured:

• Overall utilization rates for TMB and MGPT tests.

• Tumor mutation burden and multi-gene tumor panel testing utilization rates.

• Tumor mutation burden (TMB) and multi-gene tumor panel testing (MGPT) utilization rates.

• Tumor mutation burden (TMB) and multi-gene tumor panel testing (MGPT) utilization rates by age, gender, and region.

• Overall utilization rates for TMB and MGPT tests were higher in females compared with males for TMB (0.24 vs 0.10 for males) and MGPT (1.38 for females vs 1.22 for males) (Figures 1 and 2).

• Overall utilization rates for both TMB and MGPT by region (Mid-Atlantic, Midwest, Northeast, South, and West) were 0.10, 0.13, 0.14, 0.15, and 0.16 per 1,000 members per year, respectively.

• The objectives of this analysis were to:

• Characterize the variation in CPT coding usage for tumor mutation burden (TMB) and multi-gene tumor panel testing (MGPT) tests.

• Explore the ability of this variation to measure real-world utilization of TMB and MGPT tests.

• The CPT coding variability observed in this study highlights the need for standardization of coding guidelines to achieve a value-based practice system and improve the quality of patient care.

• Although the entire United States is represented in the data set, total population representation varies by states, introducing geographic sources of bias.

LIMITATIONS

• The current analysis only evaluates the commercially insured population over a 1-year period. This is a known but acceptable source of bias given that the primary intent of this study is to assess feasibility of these tests for use in outcome studies of commercially insured populations.

• Future research may focus on further validation of claims-matching algorithms and verification of utilization patterns in an independent patient cohort.

• Real-world data on trends in genomic testing may provide insights into the current status of cancer care and thus guide health care providers as well as enable treatment pathways in delivering value-based care.

• The CPT coding variability observed in this study highlights the need for standardization of coding guidelines to achieve a value-based practice system and improve the quality of patient care across US oncology practices.

• There is an immediate need to understand the real-world usage of diagnostic testing and its impact on treatment patterns, healthcare resource use, and costs.

• For future study, it is essential to extend this analysis to additional geographic locations, patient populations, and clinical settings.

CONCLUSIONS

• This study provided an initial understanding of patterns of utilization of diagnostic testing in the United States.

• Real-world data on trends in genomic testing may provide insights into the current status of cancer care and thus guide health care providers as well as enable treatment pathways in delivering value-based care.

• The CPT coding variability observed in this study highlights the need for standardization of coding guidelines to achieve a value-based practice system and improve the quality of patient care across US oncology practices.

• There is an immediate need to understand the real-world usage of diagnostic testing and its impact on treatment patterns, healthcare resource use, and costs.

• Future studies need to continue to assess the accuracy of mapping diagnostic testing products with medical claims.

REFERENCES


Kaushal Desai; Gillian Hooker; Gboyega Adeboyeje; Sumesh Kachroo; Shuvayu S. Sen

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