

2020 NPCR MARYLAND CANCER REGISTRY SUCCESS STORY

STORY CATEGORY: Registry Operations

STORY TITLE: MQAT: The Myriddian Quality Assessment Tool

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SUMMARY

Myriddian LLC (Myriddian) is contracted by the Maryland Department of Health to lead the quality assurance and data management of the Maryland Cancer Registry. Beginning in 2019, Myriddian worked with the Maryland Department of Health to develop enhanced quality assurance measures; these included the addition of Robotic Process Automation (RPA) and the development of the Myriddian Quality Assurance Tool (MQAT, pronounced M-CAT), which works with EMaRC Plus, Prep Plus and CRS Plus to improve data quality and efficiency during the abstract consolidation process.

CHALLENGE

Myriddian was awarded the contract to perform quality assurance and data management of the Maryland Cancer Registry in January 2019. In the months after, the Maryland Department of Health identified several cases where race, ethnicity, gender, patient address, census tract, and other geospatial fields had changed on established medical summaries compared to their values at the beginning of the Myriddian contract term. After careful review of internal procedures and the consolidation process in CRS Plus, the identified data anomalies originated from several sources:

- The Prep Plus to CRS Plus import process follows automatic consolidation rules that will override established medical summary values with incoming values from an abstract in certain cases (e.g. ethnicity, race, gender). These must be identified manually by a Certified Tumor Registrar (CTR), often using diagnosis notes and text from the case as a source of truth.
- Manual consolidation presents old, new, and consolidated values in CRS Plus, and it is the CTR's responsibility to choose the proper value. Certain values, such as race, ethnicity, gender, birthdate, social security number, patient address, diagnosis date, should not change in most circumstances. Any changes must be identified quickly so that the CTR can evaluate the reason for the change and take corrective action if needed.
- When incorporating data from Vital Statistics, the National Death Index, and other sources obtained from the State into the database, values may change that are inconsistent with recently consolidated records. These discrepancies must be identified so that the integrity of data incorporated from other sources is either preserved or changed when appropriate.

Myriddian and the Maryland Department of Health also identified other areas for improvement, including the identification of duplicate records before processing in CRS Plus and preprocessing XML Meaningful Use records to identify cases absent from the CRS database.

SOLUTION

Myriddian realized that addressing quality control challenges would require a multi-pronged approach. Implementing RPA would be a starting point to minimize errors introduced during repetitive tasks. RPA enables data entry staff to work *smarter* by leveraging a software bot to handle the data collection and data entry. This frees the CTR to focus on cases where ambiguity or missing data necessitates human follow-up. Myriddian employed RPA to scrape data from Death Certificate Only cases and input that data directly into Web Plus. In all cases, a CTR initiated and monitored the RPA process. The bot alerted the CTR when the process was complete or if a problem was encountered. Upon completion, the CTR reviewed each record for edits and accuracy.

Myriddian also implemented additional measures to support real-time monitoring of the database by developing and deploying MQAT. The essence of MQAT is a combination of SQL Server trigger-based record tracking and ongoing query analysis which permits the CTR Quality Assurance Lead to readily identify changes in specific fields that MQAT is programmed to monitor. The monitored fields include those which are more likely to have accidental or high-impact changes in the medical summary. By evaluating the entire Patient and Medical Summary database tables for any changes, regardless of timing or purpose, and recording those changes over time, the MQAT tool allows for a comprehensive snapshot over time of how the data evolve – along with the accountability of who changed the data, what data changed, and when it changed.

RESULTS

By employing RPA, the Maryland Cancer Registry improved the data entry process for Death Certificate Only cases by increasing efficiency and improving data accuracy. RPA helped ensure that CTRs' valuable expertise could be applied to appropriate challenges instead of routine tasks.

Additionally, MQAT worked directly with the Web Plus SQL database and evaluated the contents of all NAACCR bundles on a line-by-line basis. Each line was compared to the critical data fields in the Registry SQL Database. If a line contained unique case data, it was marked for processing by Prep Plus. If the line contained duplicate data, it was skipped. This process reduced the number of duplicates that traversed the Registry Plus workflow, and in turn, reduced the amount of time CTRs spent voiding cases that should not have been imported.

Another key MQAT benefit was the reconciliation of cases that were never resent following rejection – facility-submitted bundles are rejected if they have even a single error. Facilities often resubmit the bundles, excluding the cases that caused errors. MQAT provided an opportunity to verify the resubmission of the cases while eliminating duplicate submissions. During the year-end review, discrepancies in counts between the facility and Maryland Cancer Registry were resolved by verifying the source bundles line by line against the Registry Database.

Also, the ability to process cases based on diagnosis year was a real benefit to submission workflow. Facilities frequently submit cases in a single bundle from multiple diagnosis years, while the Maryland Cancer Registry is primarily focused on processing a single year. By only exporting cases for the current processing year and skipping cases from other years, CTRs remained focused on the highest priority cases.

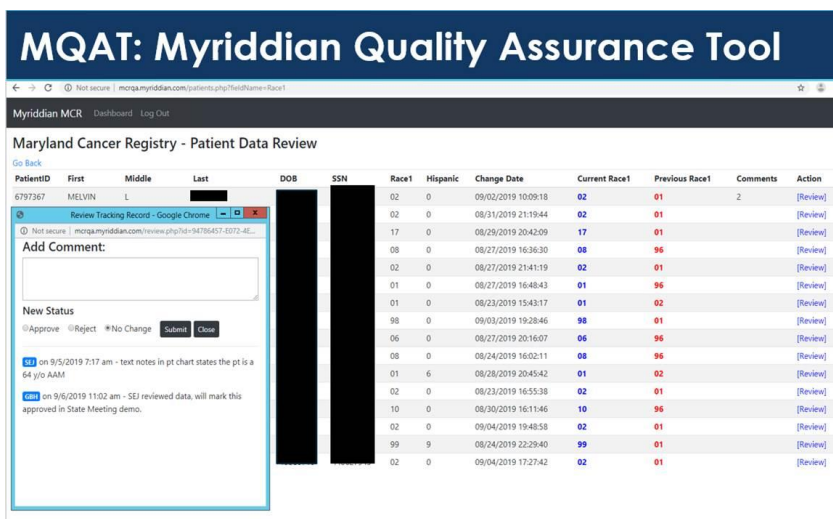
MQAT provided a consistent way to verify that all bundles uploaded to Web Plus were successfully processed through consolidation in CRS Plus. If bundles contained cases that were skipped or voided in error, they were flagged for manual review and re-imported if necessary.

After going live with the Web Plus NAACCR module, Myriddian further enhanced MQAT to identify bundles marked as non-NAACCR, which were frequently NAACCR bundles that had been renamed to circumvent built-in error controls and edits from running in Web Plus. MQAT processed these “non-NAACCR” bundles, identified cases that were missing from the Registry, and allowed the CTR the ability to export only those missing cases. Additionally, MQAT identified HL7 files uploaded as Meaningful Use and renamed as other non-intuitive file extensions to quickly highlight those files for export to EMaRC Plus.

Meaningful Use processing presents challenges to Central Registries. The workflow necessary to collect, process, and dispatch Meaningful Use data is time-consuming and prone to losing critical data. To ensure that every XML file received was processed, MQAT crawled through the Secure Document Server file repository looking for data that was not in the Registry Database. If a new case was identified, MQAT prefixed the filename with one of three following notes: NOMATCH, MATCH, or ERROR. Using the prefixes, the CTR then identified new patient files and prioritized loading them into EMaRC Plus first. Files marked as ERROR were processed next, as they may have contained XML structure errors that needed to be dealt with individually. MATCH cases were processed last, as needed. Crawling much like a search engine on the Internet, this process greatly sped up the process of identifying new cases.

The lessons learned through RPA and MQAT directly translated into training opportunities for CTRs. Myriddian had regular in-house training sessions to ensure that all CTRs were familiar with the challenges identified in the quality control process.

Screen shot of the MQAT program:



SUSTAINING SUCCESS

MQAT improved the workflow and data quality of Maryland Cancer Registry data processing through the identification of data anomalies in real-time, pro-active de-duplication of cases coming through Web Plus, and a consistent approach to managing the complex task of identifying and screening Meaningful Use data for processing. Regular training of CTRs reduced or eliminated many common issues identified in the quality control process and improved the return on investment. These successes will be sustained through ongoing CTR training, as well as ongoing evaluation and enhancements of MQAT processes.

REGISTRY CONTACT INFORMATION

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