Centralized Analytics in a Changing Military Health System

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Analytica worked with the DHA's Analytics and Evaluation Division (J-5) to provide centralized analytics services, data reporting processes, and automation. Our team successfully automated or semi-automated data collection and reporting, often resulting in the development of dashboards that aid leadership in making critical, enterprise-wide decisions. We modeled and forecasted various aspects of cost through the MHS enterprise and specific incidents such as the COVID-19 pandemic. This work aided in an increase in the reliability, sustainability, and quality of DHA data products.

The Challenge

Team Analytica was tasked with actions to improve the Defense Health Agency (DHA) Analytics and Evaluation Division (J-5) centralized analytics services, data reporting processes, and automation. Our team investigated complex issues in measuring, evaluating, and analyzing data to help support budgetary and operations support, as well as the development of enterprise measures required for problem-solving.

Our Approach

DHA delivers analytics requests to various stakeholders ranging from a single treatment facility to Markets, to Health Affairs, to Congress. Centralizing requests to the J-5 Analytics & Evaluation Division optimizes product delivery. Team Analytica's approach to requests is to develop dashboards that aid leadership in making critical, enterprise-wide decisions. Our team successfully completed work requests such as:

- Automating or semi-automating data collection and reporting, often resulting in the development of dashboards that aid leadership in making critical, enterprise-wide decisions

- Developing new measures or metrics

- Modeling and forecasting of various aspects of cost throughout the Military Health System (MHS) enterprise

- Modeling and forecasting specific incidents such as the COVID-19 pandemic

The MHS portal tracks requests for analytics support from submission to completion. Stakeholders who require support, submit tickets, and a triage team of analysts assigns the work to the appropriate team with the applicable skillset for completion. For example, a specific team is assigned for dashboard buildout requests, another team is assigned for requests involving anything related to the 'measures' library or the development of measures. Ticket status updates or extensions continue through the process and require the analyst to complete the work to upload or otherwise provide the final product for archiving. DHA uses this system not only as a tracking mechanism and system of record, but also to justify budget requests for the various programs and teams who support this work.

Tools

The DHA J-5 team uses a set of data visualization and report generation tools to answer stakeholder questions.

Dashboards

Readiness: Knowledge, Skills, and Ability (KSA) Dashboards

DHA J-5 produces and maintains the KSA dashboards (DHA J-5 n.d.) in support of various stakeholders including DHA, Military Treatment Facilities (MTFs), the Office of the Secretary of Defense, Cost, Assessment and Program Evaluation (CAPE), and the Services. The dashboards provide near real-time data on KSAs, a critical metric for evaluating readiness and health system capabilities.

KSA scores reflect the extent to which a provider's current resources prepare them to provide critical specialty care downrange (DHA J-5 n.d.). KSAs are one of several measures that support decision-making for the key stakeholders regarding staffing, new recruits, contracts, deployments, and resources, to meet key Military Health System (MHS) objectives. DHA J-5 publishes the dashboards on a DHA server that receives regular viewer traffic.

Health System Performance: Review and Analysis (R&A) Measure Dashboard

The R&A Measure dashboard (R&A n.d.) supports action-oriented decision-making to maintain and improve performance within DHA's transitioned markets by providing DHA and market leadership with nine different views summarizing the performance of R&A measures.

DHA J-5 uses color-coded icons to indicate the status of numerous performance measures and categories by market, parent facility, and child facility, as defined in the legend to the left. This implementation of data visualization enables leadership to identify both overarching and MTF-specific performance areas that are operating well, and those which require intervention for improvement.

In several views, the individual measures are aggregated into groups, including Access to Care, Outcomes, Patient Safety, & Operations, which enables procedural decision-making that can support the streamlined improvement of multiple metrics across the group.

Health Outcomes: WICC Dashboards

DHA centralizes the tracking of numerous health outcomes metrics to supply MHS providers, Markets, and DHA HQ with patient data to improve protocols and individualized treatment.

For example, the WICC (Women and Infant Clinical Community) dashboard was created to define, prioritize, and implement initiatives to enable readiness through decreasing non-beneficial clinical variation, improving outcomes, and positively impacting women's and infant care in the MHS. (WICC n.d.) Providers, facilities, Markets, and DHA HQ can use patient health metrics (WICC, and other areas such as diabetes testing, cancer screenings, etc.) to implement changes and improve care.

Emergency Decision Support: COVID-19

DHA J-5 created a multitude of products to track cases, supplies, vaccinations, and costs in near real-time during the COVID-19 pandemic to support decision-making and reporting efforts for numerous stakeholders.

For example, the COVID-19 Vaccine & Distribution Status Report was an iteration of DHA's efforts to track vaccine orders and administration across the Services and bases. DHA HQ, Markets, and facilities can use this product to allocate resources, monitor implementation progress, and generate reports for Congress and other agencies, such as Health Affairs.

The Solution

Team Analytica worked with DHA to implement centralized analytics which provided an increase in the reliability, sustainability, and quality of DHA data products, as well as an opportunity to leverage vast amounts of data, coordination of analytic resources, and other information to facilitate data-driven, methodological decisions. Centralized analytics facilitates DHA's delivery of products to serve its vast network of stakeholders and should be continually employed to address sustained, emergent, and ad hoc decision support needs.

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