Leveraging DOMO—a Cloud-Based BI Tool—for Automated and Centralized Catchment Data Analysis for Southern Arizona

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1. Background

The University of Arizona Cancer Center (UACC) catchment area data collection initiative focuses on enhancing cancer surveillance across five southern counties in Arizona. This project seeks to centralize diverse cancer-related catchment area data to inform strategic research, outreach, and intervention efforts. Data are gathered from over 10 different data sources, which vary in data structures, formats, and update frequencies.

Curating and restructuring the data in a consistent and uniform format is a time-consuming and manually intensive process. This abstract details the methods and BI tool (DOMO) used to automate the data warehousing, analyzing and visualizing procedures for catchment area data gathered from multiple sources to facilitate timely reporting and decision making.

2. Goals

- Centralize cancer data from diverse sources into a standardized data warehouse with structured formats
- Automate data collection, transformation, and visualization processes, delivering (scheduled) monthly, quarterly, and/or annual insights on cancer burden, health disparities, demographics, and screening metrics through interactive key performance indicator (KPI) dashboards

3. Solutions and Methods

DOMO is a comprehensive cloud-based BI platform that consolidates data from multiple sources, supporting the entire data analysis process – from integration, warehousing, and preprocessing to analytics, visualization, and real-time dashboard reporting. Its user-friendly interface enables a wide range of users—technical data developers to non-technical healthcare professionals - to seamlessly access and work with the data. Within the UACC Community Outreach and Engagement's (COE) Data team, DOMO supports end-to-end data analysis for UACC's Catchment Data Analysis. By leveraging DOMO, we aggregate data from external sources, build (Extract, Transform, Load) ETL pipelines, standardize data, and create dashboards and reports for analysis. This automation has minimized the manual effort involved in data collection, cleaning, preprocessing, and dashboard updates, allowing the COE team to prioritize community outreach initiatives and strengthening UACC's role in community support, advocacy, and effective cancer prevention, control, and treatment communication.
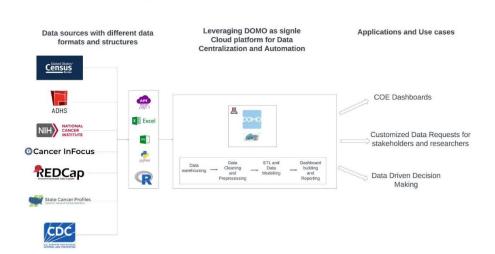
4. Outcomes

By using DOMO, we have:

- Created and launched five interactive dashboards dedicated to UACC Catchment Data and Community Engagement and Outreach survey data
- Consolidated from multiple software tools to a single Cloud BI platform DOMO
- Streamlined data integration and improved dashboard update frequency, significantly reducing manual workload and data lag

5. Lessons Learned and Future Directions

DOMO's data integration automation has dramatically reduced the manual labor involved with working with the data, while also minimizing data inconsistencies. Additionally, centralized data platforms like DOMO have enhanced reporting accuracy and enabled real-time updates on cancer data metrics, which is essential for timely intervention strategies. Looking forward, we would like to expand automation to support predictive analytics that can offer advanced cancer risk assessment, prevention, and early detection capabilities. Future efforts will also focus on broadening our data sources to include more health determinants, providing deeper insights into regional health disparities and community needs. Lastly, in strengthening our partnerships with local health departments and community organizations and facilitating data-sharing capabilities, we hope to enhance shared data initiatives and improve our collective cancer outreach efforts.

Figure

University of Arizona Cancer Center COE Data Infrastucture