

Technology Library - v5



Last Published: 2018-Jul-01

This document provides an overview of technology which has been developed by Health Catalyst. We are continuously improving our products and services and we reserve the right to make changes in specifications and features shown herein, or to discontinue the product described at any time without notice or obligation. Some technology may not be available for deployment based on current product status.

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Changes Since Last Published on 2018-Jul-01

UPDATED	PRODUCT TYPE	STATUS	APPLICATION / ACCELERATOR NAME
2018-Jul-18	Software Application	In-Development	Care Mgmt: Care Team Insights
2018-Nov-01	Software Application	Limited Availability	Financial Pop Health Leading Wisely Dashboard
2018-Nov-01	Software Application	Limited Availability	Financial Population Health Data for Excel Analysts
2018-Jul-18	Software Application	In-Development	Care Mgmt: Patient Intake
2018-Jul-26	Software Application	Generally Available	Patient Safety Monitor™: Surveillance
2018-Aug-14	Software Application	Limited Availability	Touchstone™: Inpatient
2018-Oct-31	Analytic Accelerator	Discontinued	Breast Milk Feeding

Terms & Definitions

Health Catalyst divides its technology offering into four categories:

- **Data Operating System ("DOS™") and Platform Applications** which is the foundation for the software applications and analytic accelerators below.
- **DOS™ Options** are additional micro-services which extend the capabilities of the platform.
- **Software Applications** for which Health Catalyst provides full installation, maintenance, and upgrades
- **Analytics Accelerators** are highly customizable to clients' needs and use a third-party visualization
- **3rd Party Technology** which are optional third party products, made available by Health Catalyst.

DOS™, Platform Applications and Software Applications

As long as clients are subscribing to Technology Access for these products, Catalyst will deliver initial installation, ongoing maintenance, upgrades, and versions and will be responsible for installation. Deployment configuration beyond the out-of-box capability will require additional Professional Services. The following are included:

- **DOS™**, its embedded data warehouse, fabric services, attached data sources and data management tools, and any machine learning capabilities that are implemented on the Platform. See Appendix A for a list of available Source Marts.
- **DOS™ Options**, which include additional platform capabilities such as Real-time Streaming and Natural Language Processing are not included in base pricing.
- **Software Applications**, which are traditional native web or mobile products that do not require supplementary visualization tools. Examples include Touchstone™ (comparative analytics) and Leading Wisely.

Analytics Accelerators

The Health Catalyst Analytics Services Organization provides a library of Analytics Accelerators. We deploy these Accelerators in any visualization technology that our clients request—typically Qlik or Tableau, although Excel, Access databases, and Power BI are also popular options.

Because each deployment of an Analytics Accelerator requires a high degree of customization to meet the client's needs, we do not treat Accelerators as traditional

“software.” Instead, they are highly customized visualizations that leverage the robust knowledge set and deployment expertise of the Health Catalyst team. Because of the high degree of customization, Catalyst does not provide a traditional software maintenance or upgrade program for Analytics Accelerators. Instead, our professional services personnel are available to enhance these Accelerators (under contract for such work), or the client’s internal analytics teams can enhance and customize the solution.

Analytics Accelerators are presented in this document according to their respective domains.

Third Party Technology

These are optional systems or applications which provide additional capability to DOS and other products offered by Catalyst. Third party products are not included in the Technology Access subscription services, but are available through Catalyst.

Availability Status

- **Generally Available** – Technology which is ready to be included in new client projects. Generally Available Technology is subject to change in capability and is available as documented here.
- **Limited Availability** – This Technology represents active development projects at current client sites or internally. Limited Availability Technology may have gaps in functionality, and is subject to errors and incomplete outputs. Because of this, Limited Availability Technology is provided on an “as is” and “as available” basis without any warranty. Client should exercises caution in using Limited Availability Technology, including double-checking the results and outputs against external data and information systems. Client should not rely solely on the results or outputs of Limited Availability Technology. Limited Availability Technology will be deemed “generally available” when identified as such in the Technology Library.
- **Third Party Technology** - Products with this designation are from third party companies and are optional systems or applications which provide additional capability to the Data Operating System and other products offered by Health Catalyst. Third party products are not included in the Technology Access subscription services.
- **Discontinued** - This Technology has been discontinued from new client deployments due to a number of reasons including: lack of market interest, or replacement by another application, module or capability in the Technology Library. Contact your Health Catalyst team member for more information.

Data Operating System (DOS™)

DOS™ is a vendor-agnostic digital backbone for healthcare.

- 1. Reusable clinical and business logic:** Registries, value sets, and other data logic lies on top of the raw data and can be accessed, reused, and updated through open APIs, enabling third-party application development.
- 2. Streaming data :** Near or real-time data streaming from the source all the way to the expression of that data through the DOS, supporting both exchange of transaction-level data and analytic processing. (This capability requires DOS version 4.2 or above and additional hardware which is not included as part of the standard hosting environment).
- 3. Integrates structured and unstructured data :** Integrates text and structured data in the same environment. (Unstructured text data requires the use of optional software and hardware not included in the standard Technology Access subscription service.)
- 4. EHR Integration (closed loop capability) :** The methods for expressing the knowledge in the DOS include the ability to deliver that knowledge at the point of decision-making, including back into the workflow of source systems, such as an EHR.
- 5. Microservices architecture :** In addition to abstracted data logic, open microservices APIs exist for DOS operations such as authorization, identity management, data pipeline management, and software application telemetry. These microservices are built specifically to enable third-party applications to be built on the DOS.
- 6. Machine Learning :** The DOS natively runs machine learning models and enables rapid development and utilization of these models, embedded in all applications.
- 7. Agnostic data lake :** Some or all of the DOS can be deployed over the top of a healthcare data lake such as HaDooop.

DOS Components

- DOS™ Late-Binding™ Data Warehouse
 - DOS™ Data Acquisition and Storage (Source Marts)
 - DOS™ Platform Applications
 - DOS™ Fabric Web Services for Data
 - DOS™ Fabric Web Services for Applications
 - DOS™ Fabric Web Services for Real-Time Streaming
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DOS™ Platform Applications

DOS™ Platform Applications are supplied as part of the Health Catalyst Data Operating System. These applications are used to create source marts for new data sources, create subject-area marts for new outcomes improvement applications, secure the data, manage the quality of the data in DOS, and organize all the above via meta-data management.

Instant Data Entry Application (IDEA)

The **IDEA** software application enables users to create a custom data-collection application. Sometimes a source system doesn't include a slice of data. The Instant Data Entry Application (IDEA) builds and deploys custom web applications to collect data. Data entered into IDEA flows right into the DOS™ platform.

IDEA can create as many data entry applications as needed, manage them these applications in a central place, and set up mappings and lookup lists to scale for enterprise needs.

Subject Area Mart Designer (SAMD)

Subject Area Mart Designer simplifies the process of pulling information from various source systems to build SAMs that measure specific cost and quality metrics. By relying on the metadata captured by Health Catalyst's **Atlas** meta-data driven ETL process. When a source system is loaded into the DOS™ platform, SAM Designer pulls relevant data into a SAM and filters out any data not needed. Analysts can then run calculations on that data and create visualizations that reflect the results.

Source Mart Designer (SMD)

The **Source Mart Designer** application reduces the time required to manually extract data from source systems, bring data into the DOS™ platform and map it to shared data marts for downstream use in Software Applications and Analytic Accelerators.

Atlas Meta-Data Management

Atlas is a web-based, user-friendly application that opens a window to DOS™ and enhances DOS™ by enabling adjustments to the data and user interface by users. A Google-like keyword search combs each data mart, table, and column in the metadata repository to display to users:

- The source and lineage of data
 - How often it's updated
 - Data examples, samples, and types
 - Descriptions of the physical data tables and columns
 - Any known data quality issues
 - Contact information for data stewards
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DOS™ Console

The **DOS™ Console** application displays malfunctions and errors in the process of loading new data into the DOS™ platform, showing system administrators where they need to take corrective action.

Measures Manager

Helps manage the complexity faced by health systems managing multiple contracts, quality measure requirements, and measurement efforts. Provides a cross-organizational view of contract and payer requirements, measure definitions and versioning, and location of measures already existent in EDW.

DOS™ Fabric Web Services for Data

DOS™ Fabric Web Services for Data can search, analyze, calculate and manipulate data in the DOS™ platform. These software services provide access to the following DOS™ capabilities :

- Natural Language Processing integration with Third Party Technology
 - Machine Learning (AI) engine using the "R" language and a starter set of ML models
 - Meta-data Management services visualized in the Atlas application
 - Data Governance & Measures Management visualized in the Atlas application
 - DOSmarts (Shared Data Marts) including: Terminology, Person and Clinical. Other DOSmarts are included as part of individual software applications or analytic accelerators
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DOS™ Fabric Web Services for Applications

DOS™ Fabric Web Services for Applications are designed specifically for healthcare and enables the DOS™ platform to support applications developed by: Health Catalyst, our clients and by other third parties. These services include support for access management security and auditing, master data management and integration of third party patient/person identity systems, and integration tools for enabling visibility of DOS information into the workflow of EMR, EHR and other point of care HIT systems.

- Access Management to enable management of roles and user to data
- Auditing sub-system from Ideara (included in with the DOS™ platform) to record and manage user access to data
- EMR Workflow Integration to provide patient specific analytics at the point of care with most EMR systems including Cerner, Epic, Allscripts and others.
- Master Data Management of persons, patients and providers using the Visionware Multiview product (optional Third Party Technology purchased separately or provided by client)

DOS™ Fabric Web Services for Real-Time Streaming

DOS™ Fabric Web Services for Real-time Streaming is a Health Catalyst web services application designed specifically for healthcare that enables DOS Platform and Software Applications and Analytic Accelerators, to receive and process HL7 messages in real time. The HL7 organization is well known among healthcare organizations, vendors, and software products for its standards that enable integration between systems. DOS components take advantage of this service to create source marts that hold data received via HL7 messages.

Software Applications

Care Mgmt: Care Team Insights

Product Status: In-Development

Last Updated: 2018-Jul-18

The **Care Team Insights** Software Application is a dashboard application for leaders in the care management organization to enable daily views of enrollment, utilization, risk and cost by care team, facility and care program/family. Comparison between enrolled and non-enrolled individuals enables basic indication of return on investment for the care management program.

CORUS™ Suite: Activity-Based Costing

Product Status: Generally Available

Last Updated: 2018-Jun-15

The **CORUS™ Suite: Activity-Based Costing Software Application** leverages the Health Catalyst® Data Operating System (DOS)™ and activity-based costing to deliver accurate and actionable data. Activity-Based Costing helps users manage the true cost of care across the continuum.

CORUS™ Suite: Cost Insights

Product Status: Generally Available

Last Updated: 2018-Jun-15

The **CORUS™ Suite: Cost Insights** application integrates detailed clinical and financial data from multiple sources to help organizations understand and actively manage the cost of the services they deliver to patients. The application's infrastructure facilitates flexible ad-hoc analysis and can serve as a single source of truth for understanding the true cost of care and the areas of greatest variation and potential improvement.

Financial Pop Health Leading Wisely Dashboard

Product Status: Limited Availability

Last Updated: 2018-Nov-01

This Leading Wisely module provides out of the box ACO (population health) metrics, visualizations and an alert system for executive notification of poorly performing metrics.

Financial Population Health Data for Excel Analysts

Product Status: Limited Availability

Last Updated: 2018-Nov-01

The Health Catalyst Shared Claims data mart aggregates the multitude of claims formats from health plans into a single normalized data structure which supports Microsoft's Excel spreadsheet product for in-depth use by data and business analysts.

Note: additional server licensing and hardware may be required.

Care Mgmt: Patient Stratification

Product Status: Generally Available

Last Updated: 2018-Feb-13

The **Patient Stratification** Software Application integrates current cost trends, chronic conditions, as well as social determinant risk models and other sources, to identify the individuals most likely to benefit from proactive care management programs. Users can build and analyze different stratification algorithms based on proven risk models and resource utilization to identify the most important candidates for intervention through complex care management, chronic condition management, readmission prevention or other programs.

Care Mgmt: Patient Intake

Product Status: In-Development

Last Updated: 2018-Jul-18

The **Patient Intake** Software Application is a workflow application that enables lists of patients created by other applications to be routed to a series of users based on roles. Users can add or remove patients from the list before routing the patient record to the next person in the workflow. This application is required when deploying Patient Stratification as a patient list source for Care Coordination.

Leading Wisely

Product Status: Generally Available

Last Updated: 2018-Apr-13

The **Leading Wisely** Software Application is the configurable framework to monitor your choice of measures and customize alerts to users when data changes. Leading Wisely communicates and facilitates engagement throughout the organization by transforming data, targets and goals into meaningful and actionable information.

MACRA Measures & Insights

Product Status: Generally Available

Last Updated: 2017-Aug-18

The **MACRA Measures & Insights** Software Application is a foundational product for integrating hundreds of measures across financial, regulatory, and quality departments. It enables proactive measures surveillance to enhance outcomes; and facilitates monitoring behaviors, interventions and activities needed to influence, manage, or change outcomes.

Patient Safety Monitor™: Surveillance

Product Status: Generally Available

Last Updated: 2018-Jul-26

Patient Safety Monitor™: Surveillance Module is a secure, cloud-based software module that monitors incoming patient data from multiple sources in near real-time. Based on domain-specific triggers, this automated all-cause harm surveillance tool, continually surveils data and focuses clinical attention on patients experiencing an adverse event or exposure to conditions that can lead to injury.

Touchstone™: Inpatient

Product Status: Limited Availability

Last Updated: 2018-Aug-14

The **Touchstone** Software Application aggregates data from across healthcare organizations. The Touchstone benchmarking service uses risk-adjusted benchmarks and predictive models to intelligently direct users as they prioritize improvement opportunities and explore the root causes of under- (and over-) performance in key areas.

Touchstone™: Population Health

Product Status: Limited Availability

Last Updated: 2018-Jun-20

This Touchstone module adds claims and benchmarks from ambulatory care settings combined with acute hospital care to provide population health insights. Comparison to other Health Catalyst clients and HHS/CMS benchmarks is provided.

Analytic Accelerators

Analytic Accelerator Domains

- ACO Performance Accelerators
- Clinical Accelerators
- Financial Accelerators
- Operational Accelerators
- Patient Safety Accelerators

ACO Performance Accelerators

ACO Explorer

Last Updated: 2017-May-30

The **ACO Explorer** Analytics Accelerator is an executive-level dashboard for monitoring ACO health. It lets the user review trends and performance against targets on key metrics for per-member-per-month performance, leakage, and utilization. The performance dashboard is dependent on other analytics including PMPM Analyzer and ACO MSSP Measures for the data that is displayed.

Bundled Payments

Last Updated: 2017-May-30

The **Bundled Payments** Analytics Accelerator evaluates cost and variation associated with care delivery for patients and is intended to prioritize areas of focus and provide a baseline for exploratory analysis. The is modeled on Centers for Medicare and Medicaid Services (CMS) bundle definitions. The tool also supports custom bundle development.

Hierarchical Condition Category (HCC) Insights

Last Updated: 2017-Aug-23

The Hierarchical Condition Category (HCC) Insights Analytics Accelerator facilitates improvements to HCC coding to ensure proper payment for appropriate levels of care under value-based payment contracts. Ensuring correct coding of the conditions, and the severity of the conditions of the population enables better understanding of the true health needs of the population and ensure that the payments are adequate and appropriate to care for patients. The tool helps identify type priorities for improvement on an individual patient and provider/practice level and helps identify appropriate intervention areas.

PMPM Analyzer

Last Updated: **2017-May-30**

The **PMPM Analyzer** Analytics Accelerator supports a holistic evaluation of the drivers of per member per month payment performance. This claims-based tool gives an in- and out-of-network view of payment trends, and gives users the ability to understand how an ACO's procedures, providers, members, and specialty areas are contributing to overall PMPM payment performance.

MSSP Measures

Last Updated: **2017-Aug-18**

The **ACO MSSP Measures** Analytics Accelerator supports ACO's participating in the Medicare Shared Savings Program (MSSP). This tool supports monitoring and managing actual performance against CMS required measures for ACO's throughout the year. The ability to measure performance and drill into each measure at anytime, not only after a required reporting period, provides the ability to identify inefficiencies and opportunities for improvement in a more timely manner.

Attribution Modeler

Last Updated: **2017-Aug-18**

The **Attribution Modeler** analytic accelerator is designed for clinical directors, operational directors, clinical-program guidance teams, and operational guidance teams through implementation in Health Catalyst analytic accelerators. For patient populations of interest Attribution Modeler provides attribution based on configurable methods, weighting, scoring and ranking.

Clinical Accelerators

Acute Coronary Syndrome (ACS)

Last Updated: 2016-Apr-09

The **Acute Coronary Syndrome (ACS)** Analytics Accelerator is aimed at unit directors and medical directors; operational directors; clinical improvement teams; and emergency, intensive care, and inpatient care units focused on outcomes improvement for patients presenting with ACS. The ACS Analytics Accelerator focuses on providing data to help improve rapid diagnosis of STEMI and NSTEMI patients; NSTEMI risk stratification into high, moderate, and low risk categories; and ED and inpatient management of all patients with ACS including Acute Myocardial Infarction (AMI).

Blood Utilization Dashboard

Last Updated: 2014-Mar-31

The **Blood Utilization** Analytics Accelerator is a dashboard which provides clinicians an overview of blood utilization. The interactive allows the user to review usage by applying filters related to specialty, transfusion type, APRDRGs, and hemoglobin level. Filtering by individual ordering providers helps identify variations in practice among providers within a specialty.

Colorectal Surgery

Last Updated: 2015-Aug-20

The **Colorectal Surgery** Analytics Accelerator provides data focused on colon cancer prevalence and screening rates, operating room (OR) efficiency, and peri-operative practices that optimize recovery after surgery.

Glycemic Control in the Hospital

Last Updated: 2015-Aug-20

The **Glycemic Control in the Hospital** Analytics Accelerator provides data to help teams anticipate, prevent, detect, and manage dysglycemia (hypo- and hyperglycemia) in hospitalized patients.

Heart Failure

Last Updated: 2015-Mar-12

The **Heart Failure** Analytics Accelerator is aimed at cardiovascular clinical program directors, operational directors, clinical program guidance teams, operational guidance teams and care management teams. The application focuses on providing data for a healthcare system's heart failure cohort. It aids in tracking and reporting CMS Core Measures (including, length of stay (LOS), readmissions, administration of appropriate medications, etc.), risk stratifies patients requiring the most resources, and tracks care transitions to the outpatient setting. The data surfaced in this application helps identify opportunities for improving care and outcomes in all of these areas.

Joint Replacement - Hip & Knee

Last Updated: 2016-Jun-10

The **Joint Replacement - Hip & Knee** Analytics Accelerator helps teams reduce surgical complications, decrease length of stay (LOS), reduce care practice variability, improve outcomes, and improve patient satisfaction for patients undergoing hip or knee replacement.

Labor and Delivery

Last Updated: 2016-Feb-04

The **Labor and Delivery** Analytics Accelerator is aimed at Women and Newborn clinical directors, operational directors, clinical program guidance teams, and operational guidance teams. The focus is on providing data for a hospital system's pregnancy cohort. It aids in tracking and reporting The Joint Commission Perinatal Core Measures (administration of antenatal steroids, decreasing inappropriate cesarean sections and preventing early induction of labor) and helps identify opportunities for improving care in these areas. It also provides data about the antepartum care of C-section patients.

Pediatric Appendectomy

Last Updated: 2015-Dec-02

The **Pediatric Appendectomy** Analytics Accelerator is designed for Pediatric and Surgical Services clinical directors, operational directors, clinical program guidance teams, and operational guidance teams. It focuses on providing data for a hospital system's pediatric cohort to track morbidity and LOS of pediatric appendectomy patients.

Pediatric Asthma

Last Updated: 2015-Dec-02

The **Pediatric Asthma** Analytics Accelerator is designed for pediatric clinical directors, operational directors, clinical-program guidance teams, operational guidance teams and care management teams. It focuses on providing data for a healthcare system's pediatric asthma cohort. It provides the ability to analyze hospital care and processes to better manage pediatric asthma patients and identify areas of inefficiency and waste.

Pediatric Explorer

Last Updated: 2015-Apr-30

The **Pediatric Explorer** Analytics Accelerator provides the ability to identify and examine specific pediatric care processes based on demographic and clinical criteria down to the individual patient/provider level. Clinical criteria includes data such as diagnoses, medications, lab and order detail, preventative care, etc. It also supports the ability to identify, prioritize, track and report on quality improvement outcome goals such as LOS, readmissions and cost per case. There is also an option to build out specific pediatric populations with additional metrics.

Pneumonia

Last Updated: 2014-Apr-09

The **Pneumonia** Analytics Accelerator is designed for unit directors and medical directors; operational directors; clinical improvement teams; and outpatient, emergency, intensive care, and inpatient care units engaged in outcomes improvement for pneumonia patients. To help drive efforts to reduce pneumonia mortality, length of stay (LOS), readmissions, and cost per case, it focuses on providing data to improve initial triage/disposition of pneumonia patients, antimicrobial selection and timing, and risk stratification for care transition planning.

Population Explorer

Last Updated: 2017-Mar-27

The **Population Explorer** Analytics Accelerator is used by healthcare personnel responsible for tracking, reporting, and analyzing population metrics to improve care. Population Explorer facilitates surveillance and reporting of key outcomes such as LOS, cost, and readmissions for selected populations; helps deliver insight into patient cohorts and improvement opportunities for clinical improvement projects; and supports leaders' ability to identify, prioritize, and report on quality improvement efforts.

Readmission Explorer

Last Updated: 2017-Mar-27

The **Readmission Explorer** Analytics Accelerator is intended for hospital administrators, clinical and operations directors, and members of quality improvement teams. Readmission Explorer provides a broad spectrum of readmission metrics for all-cause, unplanned readmissions for inpatient stays and emergency department visits. For cohort selection, users can start with one of seven predefined, CMS-based cohorts, a hospital-wide specialty cohort, or use the Health Catalyst supplied Care Process Hierarchy content, or define custom cohorts by ICD-9, ICD-10 diagnosis and/or procedure codes. Regardless of the starting point for analysis in Readmission Explorer, each cohort and/or method can be further refined by patient demographics, discharge status, provider, and other metrics.

Spine: Low Back Pain

Last Updated: 2014-Apr-09

The **Spine: Low Back Pain** Analytics Accelerator is designed for clinical and medical directors, operational directors, and clinical program guidance teams and workgroups for Neuroscience, Orthopedic, and/or Primary Care. It focuses on providing data to help improve assessment, diagnosis, treatment decision-making, and quality-of-life outcomes for patients suffering from back or neck pain.

Stroke (Acute Ischemic & TIA)

Last Updated: 2016-Feb-12

The **Stroke** Analytics Accelerator helps hospitals monitor, analyze, and reduce direct and indirect stroke-related costs. It integrates evidence-based best practices, has been shown to significantly improve clinical outcomes, reduce costs of care, and improve patient-reported health status.

Coronary Artery Bypass Graft Surgery

Last Updated: 2016-Oct-14

The **Coronary Artery Bypass Graft (CABG) Surgery** Analytics Accelerator provides data to help improve the perioperative and post hospital management and care of patients requiring CABG surgery.

Diabetes - Adult

Last Updated: 2016-Oct-21

The **Diabetes - Adult** Analytics Accelerator aligns data from disparate systems to create a clear picture that helps improvement teams monitor outcomes and process measures—so they can prioritize improvement projects and assess their impact on patients. It helps identify and monitor the wide variation in diabetes care across practice settings.

Chronic Obstructive Pulmonary Disease (COPD)

Last Updated: 2016-Oct-21

The **Chronic Obstructive Pulmonary Disease (COPD)** analytic accelerator is intended for clinical and medical directors; guidance and outcome improvement teams; and front-line clinical staff that are engaged in outcomes improvement for patients that have been diagnosed with COPD. Helps teams guide assessment and interventions, measure impact, and improve outcomes for patients with Chronic Obstructive Pulmonary Disease (COPD).

Medication Diversion and Intervention

Last Updated: 2018-Jun-11

The **Medication Diversion & Intervention accelerator** enables prioritizing narcotics/opioids and focusing analysis on those drugs. A normal distribution of a narcotic is analyzed to calculate a standard deviation for dispensing. Care givers who are above 2 standard deviations are flagged. the accelerator also compares volumes dispensed by drug groups across departments.

Breast Milk Feeding

Product Status: **Discontinued**

Last Updated: 2018-Oct-31

The **Breast Milk Feeding** Analytics Accelerator is aimed at Women and Newborn clinical directors, operational directors, clinical program guidance teams, and operational guidance teams. It focuses on providing data for a hospital system's newborn cohort. It aids in tracking and reporting The Joint Commission Perinatal Core Measure PC-05 (exclusive breast milk feeding) and helps identify opportunities for promoting exclusive breast milk feeding within the newborn population.

Financial Accelerators

Financial Management Explorer

Last Updated: 2018-Apr-13

The **Financial Management Explorer** analytic accelerator is designed for senior and service line leadership as well as clinical and financial analysts. It provides single source of truth for clinical program financial performance and integrates clinical, operational, and financial measures. Rich data exploration is enabled through embedded tools for configuring and displaying data

General Ledger Explorer

Last Updated: 2017-May-30

The **General Ledger Explorer** Analytics Accelerator allows users to quickly organize, summarize, and investigate traditional general-ledger data (actual and budget) to see and understand variances and take action as needed to improve financial performance.

Health Information Management (HIM) Documentation Workflow Analyzer

Last Updated: 2017-May-30

The **Health Information Management (HIM) Documentation Workflow Analyzer** Analytics Accelerator is a reporting and analysis tool that allows senior leaders and HIM managers to quickly uncover issues and opportunities related to clinical documentation and coding. It provides executive level KPI's, historical performance trending and HIM worklists to improve process visibility and coder productivity.

Revenue Cycle Advisor: Hospital

Last Updated: 2017-Aug-07

The **Revenue Cycle Advisor: Hospital** Analytics Accelerator is a reporting tool that allows revenue cycle decision makers and analysts to quickly and easily identify trends and variances, pull ad hoc reports and address root causes of performance issues. Metrics include: denials management, accounts receivable, charge and cash trends, write offs, gross and net collection rates.

Revenue Cycle Advisor: Professional

Last Updated: 2017-Aug-07

Revenue Cycle Advisor: Professional

Key Process Analysis (KPA)

Last Updated: 2015-Mar-05

The **Key Process Analysis (KPA)** Analytics Accelerator uses the “80/20 rule” to identify cost-driving clinical areas and variation in care processes. KPA combines clinical and financial data to highlight the best opportunities for improvement and cost reduction, and guides the development of plans for technology deployment and services to support improvement initiatives.

Propensity To Pay

Last Updated: 2018-Jun-19

The **Propensity to Pay** Software Application identifies a patient's *likelihood to pay*, supporting *corresponding interventions* right in the EMR workflow, enabling finance departments to better allocate staff and resources in the patient pay workflow. Users of the application can be informed of:

- Patients with *low propensity to pay* may receive automated reminders or counseling for financial assistance, and select accounts may be written off to bad debt.
 - Patients with *medium propensity to pay* may receive for interventions specific to the patient's situation.
 - Patients with *high propensity to pay* no initial intervention.
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Operational Accelerators

Department Explorer: Emergency Services

Last Updated: 2015-Aug-28

The **Department Explorer: Emergency Services** Analytics Accelerator provides data necessary to track, trend and predict resources needed in the delivery of quality emergency care. It allows users to identify and quantify areas of opportunity in throughput, ancillary resource allocation, utilization and quality.

Department Explorer: Surgical Services

Last Updated: 2015-Aug-28

The **Department Explorer: Surgical Services** Analytics Accelerator provides managers multiple views of data regarding operational efficiency, utilization, and financial performance specific to the operating room (OR). This information helps users better analyze specific OR data such as patient prep, anesthesia prep, room turn-around, room and staff scheduling, and procedure data. Separating OR data from other hospital functions provides for specific complex processes to be analyzed along unique OR process paths. This enables better understanding, analysis and identification of improvement opportunities in the areas of cost savings, utilization, and throughput.

Labor Management Explorer

Last Updated: 2018-Apr-13

The **Labor Management Explorer** Analytics Accelerator allows managers to understand basic operational and staffing indicators to facilitate more efficient labor force utilization. Users access and dynamically interact with EMR, HR, and timecard data from multiple source systems to discover meaningful opportunities for improvement.

For example, users can attain actionable information about key metrics such as work hours per unit of service (WHPUOS), overtime hours per unit, and contract staff. review temp hours, scheduled and unscheduled PTO, and observe trends in various measures over time (e.g. compare this year to last year.)

Patient Experience Explorer

Last Updated: 2018-Apr-13

The **Patient Experience Explorer** Analytics Accelerator delivers multiple, robust views into the data patients provide about their healthcare experience. This application delivers the summary performance scores for executive leaders, survey results with goals and percentiles for unit managers, and survey details for individual providers needed to understand and improve on the safety, physical comfort, education and other aspects of patient care.

Patient Flow Explorer

Last Updated: 2018-Apr-13

The **Patient Flow Explorer** Analytics Accelerator provides hospital leadership, department level managers and clinical operational teams multiple views of data around the patient movement in and out of various locations during a visit. The uses the admission, discharge and transfer (ADT) logs of the EMR to establish patterns, trends and cycle times of common workflows.

Practice Management: Patient Access

Last Updated: 2015-Mar-13

The **Practice Management – Patient Access** Analytics Accelerator helps provide big-picture insight about the patient-access element of a medical practice, including for example:

- Monthly and yearly trends for completed appointments
- No shows or the numbers of patients who left the facility without being seen
- Cancellations and a break-down of the reasons for all cancellations
- Physician availability, by location, by unit, by specialty

Supply Chain Explorer

Last Updated: 2017-Aug-11

The **Supply Chain Explorer** Analytics Accelerator is a web enabled supply chain closed loop tool that enables:

- Cost and waste reduction
- Quality of care improvement
- Return on investment increase
- Inventory management & purchasing improvement

Community Care

Last Updated: 2018-Mar-26

The **Community Care** Analytics Accelerator is aimed at primary care clinical program leaders, primary care providers and care coordinators working in ambulatory settings, quality improvement teams, and staff responsible for reports related to the organization's status as an Accountable Care Organization (ACO).

The focus is on providing data to help organizations review population health; compare their performance to national benchmarking standards for specific measures; identify opportunities for costs savings, and help practices track, monitor, and meet the needs of high-risk patients.

Patient Safety Accelerators

Catheter Associated Urinary Tract Infection (CAUTI) Prevention

Last Updated: 2015-Mar-13

The **Catheter Associated Urinary Tract Infection (CAUTI) Prevention** Analytics Accelerator is designed for hospital infection prevention teams, clinical and operational directors, hospital leadership and members of quality improvement teams. The CAUTI Analytics Accelerator enables users to efficiently find, review, and document CAUTI cases to support National Healthcare Safety Network (NHSN) reporting and to review outcomes and trends of CAUTI across institutions and health systems. It also provides near real-time analysis of internal processes related to CAUTI to support care process improvement for CAUTI prevention.

Central Line Associated Blood Stream Infections (CLABSI) Prevention

Last Updated: 2015-Mar-13

The **Central Line Associated Bloodstream Infection (CLABSI) Prevention** Analytics Accelerator is designed for hospital infection prevention teams, clinical and operational directors, hospital leadership and members of quality improvement teams. CLABSI enables users to efficiently find, review, and document CLABSI cases to support NHSN reporting and to review outcomes and trends of CLABSI across institutions and health systems. It also provides near real-time analysis of internal processes related to CLABSI to support care process improvement for CLABSI prevention.

Pediatric Sepsis

Last Updated: 2015-Feb-19

The **Pediatric Sepsis** Analytics Accelerator helps identify patients with severe sepsis and septic shock which have a high mortality rate in children. The Pediatric Sepsis helps hospitals monitor, analyze, and improve their ability to provide this best-practice care to their pediatric patients.

Sepsis Prevention

Last Updated: 2015-Mar-04

The **Sepsis Prevention** is designed for clinical and medical directors, operational directors, clinical program guidance teams in emergency, intensive care, and inpatient units. It focuses on providing data to improve early recognition of sepsis, early intervention for severe sepsis, and early therapy for septic shock to reduce mortality, morbidity, and cost.

Surgical Site Infection Prevention

Last Updated: 2015-Mar-06

The **Surgical Site Infections (SSI) Prevention** is designed for hospital infection prevention teams, clinical and operational directors, hospital leadership and members of quality improvement teams. SSI enables users to efficiently find, review, and document SSI cases to support NHSN (National Healthcare Safety Network) reporting and to review outcomes and trends of SSI across institutions and health systems. It also provides near real-time analysis of internal processes related to SSI to support care process improvement.

Venous Thrombo-Embolicism (VTE) Prevention

Last Updated: 2015-Aug-20

The **Venous Thrombo-Embolicism (VTE) Prevention** Analytics Accelerator helps teams assess VTE rates associated with hospital admissions and monitor VTE prevention practices. The VTE Analytics Accelerator includes pulmonary embolism (PE) and deep vein thrombosis (DVT).

APPENDIX: Available Source Marts

The Late-Binding™ Architecture of the DOS platform streamlines and automates the process of bringing data into the warehouse from source systems.

A **Source Mart** contains the data that have been extracted, minimally transformed, and loaded into the DOS. Metadata, created by **Source Mart Designer** during the mapping phase of the Source Mart integration process, is used to drive the nightly update (extract, transform and load or ETL) process of Source Mart data. Periodically, typically each night, the Source Mart data are refreshed to include new data or updated data from the source system. The data are then available for downstream use in Software Applications, Analytic Accelerators, reports and local applications.

A list of currently available source marts can be found in the Appendix.

SOURCE	TYPE
Allscripts Sunrise Clinical Manager	EMR - Clinical
3M Coding and Reimbursement and HDM Systems	Billing
Adirondack ACO Clinical Data from HIXNY (HealthShare HIE)	Health Information Exchange (HIE)
Adirondack ACO Medicare	Claims
ADP	HR/ERP
ADT HIE Patient Programs - Patient Tracking	Health Information Exchange (HIE)
ADT HIE Patient Programs - Patient Tracking (OH)	Health Information Exchange (HIE)
Aetna - Claims	Claims
Affinity - ADT/Registration	Billing
Affinity - Costing	Finance/Costing
Affinity - Hospital Billing	Billing
Allscripts - IDX Ambulatory EMR Clinicals	EMR - Clinical
Allscripts - Ambulatory Practice Management	Billing
Allscripts - Case Management	EMR - Clinical
Allscripts - Patient Flow	Other Sources
Allscripts (EPSi) - Budget	Finance/Costing
Allscripts (EPSi) - Costing	Finance/Costing
Allscripts (TSI) - Costing	Finance/Costing
Allscripts Enterprise/Touchworks - Ambulatory EMR	EMR - Clinical
Allscripts Sunrise - Acute EMR Clinicals	EMR - Clinical
API Healthcare - Time and Attendance	HR/ERP
Apollo - Lumed X Surgical System	Clinical Specialty
Aprima EMR	EMR - Clinical
Aspire - Cardiovascular Registry	Clinical Specialty
ATS - Time and Attendance	HR/ERP
BCBS Illinois	Claims
Bed Ready	Other Sources
Bright Tree DME	Other Sources
Carestream	Clinical Specialty
Centriq	Other Sources

Cerner - Acute EMR Clinicals	EMR - Clinical
Cerner - Hospital Billing	Billing
Cerner - Laboratory	Clinical Specialty
Cerner - PowerWorks Ambulatory EMR	EMR - Clinical
Cerner HomeWorks	EMR - Clinical
Cerner Signature	Billing
CHMB 360+ RCM - Hospital Billing	Billing
Cigna - Claims	Claims
Commercial Claims	Claims
Cone Health Employee Plan (United Medicare) - Claims	Claims
Cost Flex - Costing	Finance/Costing
CPSI - Acute EMR Clinicals	EMR - Clinical
Digimax Materials Management - Inventory Management	Finance/Costing
Echo Credentialing - Provider Management	Other Sources
eClinicalWorks - Ambulatory EMR Clinicals	EMR - Clinical
Enterprise Master Patient Index (EMPI)	Master Reference & Terminology
Epic - Acute EMR Clinicals	EMR - Clinical
Epic - Ambulatory EMR Clinicals	EMR - Clinical
Epic - Hospital Billing	Billing
ETime - Time Tracking	HR/ERP
Fazzi - Patient Satisfaction	Patient Satisfaction
GE (IDX) Centricity - Ambulatory EMR Clinicals	EMR - Clinical
GE (IDX) Centricity - Hospital Billing	Billing
GE (IDX) Centricity - Practice Management	Billing
GE (IDX) Centricity - Professional Billing	Billing
GE (IDX) Centricity Muse - Cardiology	Clinical Specialty
GE (IDX) Centricity RIS - Radiology	Clinical Specialty
GPS Data - Location Tracking from Verizon	Other Sources
HealthQuest - Patient Accounting	Billing
Healthscope	Claims
dbMotion	Health Information Exchange (HIE)
HomeCare - HomeBase Tracking	EMR - Clinical
HST Pathways - Surgery Center	Clinical Specialty

Humana (PPO) - Claims	Claims
Innotas	Other Sources
IOS ENVI - Costing	Finance/Costing
Kaufman Hall Budget Advisor	Finance/Costing
Keane - Hospital Billing	Billing
Kronos - HR	HR/ERP
Kronos - Time and Attendance	HR/ERP
Lancet Trauma Registry	Clinical Specialty
Lawson - Accounts Payable	Finance/Costing
Lawson - Accounts Receivable	Finance/Costing
Lawson - GL	Finance/Costing
Lawson - HR	HR/ERP
Lawson - Payroll	HR/ERP
Lawson - Supply Chain	Finance/Costing
Lawson - Time and Attendance	HR/ERP
MacLab (CathLab)	Clinical Specialty
McKesson - Medipac ADT	EMR - Clinical
McKesson - Medipac Billing	Billing
McKesson Enterprise Materials Management	Finance/Costing
McKesson Horizon - Acute EMR Clinicals	EMR - Clinical
McKesson Horizon Enterprise Visibility	EMR - Clinical
McKesson HPM - Costing	Finance/Costing
McKesson PFM - Accounts Payable	Finance/Costing
McKesson PFM - GL	Finance/Costing
McKesson Series - Hospital Billing	Billing
McKesson Series - Patient Billing	Billing
McKesson STAR - Hospital Billing	Billing
MD Associates - Professional Billing	Billing
MedAssets - Costing	Finance/Costing
MedData - Practice Management	Billing
Medicaid - Claims	Claims
Meditech - GL	Finance/Costing
Meditech - Hospital Billing	Billing
Meditech 5.66 EHR w/DR	EMR - Clinical

Microsoft Great Plains - GL	Finance/Costing
MIDAS - Infection Surveillance	Clinical Specialty
MIDAS - Other	Other Sources
MIDAS - Risk Management	Other Sources
Morrisey Medical Staff Office for Web (MSOW)	Other Sources
MSSP (CMS) - Claims	Claims
Navitus - Pharmacy	Clinical Specialty
Nextgate EMPI	Master Reference & Terminology
NextGen - Ambulatory EMR Clinicals	EMR - Clinical
NextGen - Ambulatory Practice Management	Billing
NextGen (CMS) - Claims	Claims
Now Solutions Empath - HR	HR/ERP
NRC Picker - Ambulatory	Patient Satisfaction
NRC Picker - Patient Satisfaction	Patient Satisfaction
OBIX - Perinatal	Clinical Specialty
OnCore CTMS	Other Sources
Oracle (Hyperion) - Costing	Finance/Costing
Oracle (PeopleSoft) - FA	Finance/Costing
Oracle (PeopleSoft) - GL	Finance/Costing
Oracle (PeopleSoft) - HR	HR/ERP
Oracle (PeopleSoft) - Supply Chain	Finance/Costing
Orchard Software Harvest - Pathology	Clinical Specialty
PACSHealth - Radiology	Clinical Specialty
PeopleStrategy/Genesys - HR	HR/ERP
PeopleStrategy/Genesys - Payroll	HR/ERP
Phillips Xper – CathLab	Clinical Specialty
PICIS (OPTUM) Perioperative Suite	Clinical Specialty
Pioneer - Costing	Finance/Costing
PowerTrials	Other Sources
PPM - Costing	Finance/Costing
PRC - Patient Satisfaction	Patient Satisfaction
Press Ganey - Patient Satisfaction	Patient Satisfaction
PROMS	Other Sources

Quadramed Patient Acuity Classification System - Other	Other Sources
Next Gen - Ambulatory EMR Clinicals	EMR - Clinical
QNXT - Claims	Claims
QNXT/Cactus - Provider	Other Sources
QNXT/Vital - Member	Other Sources
Siemens RIS - Radiology	Clinical Specialty
Siemens Sorian Clinicals - Inpatient EMR	EMR - Clinical
Siemens Sorian Financials - Inpatient Registration and Billing	Billing
Surgical Information Systems (SIS) Surgical Services	Clinical Specialty
Smartstream - GL	Finance/Costing
SSI - Claims	Claims
StatusScope - Clinical Decisions	Other Sources
StrataJazz - Budget	Finance/Costing
StrataJazz - Costing	Finance/Costing
Sullivan Luallin - Patient Satisfaction	Patient Satisfaction
Sunquest - Laboratory	Clinical Specialty
TransChart - Other	Other Sources
Truven Benchmarks	Other Sources
Truven Quality	Other Sources
Tumor Registry	Clinical Specialty
Ultimate Software Ultipro - HR	HR/ERP
University HealthSystem Consortium - Clinical and Operational Resource Database	Other Sources
University HealthSystem Consortium - Regulatory	Other Sources
Varian Aria - Oncology	Clinical Specialty
Vigilanz - Infection Control	Clinical Specialty
WorkDay	HR/ERP
835 – Denials	Claims
Aon Hewitt - Claims	Claims
CPSI - Hospital Billing	Billing
ESI - Pharmacy	Clinical Specialty
Orriant - Wellness	HR/ERP
PHC Legacy EDW	Other Sources
RediRx – Pharmacy	Clinical Specialty

Truven - Claims	Claims
UHIN - HIE	Health Information Exchange (HIE)
UHIN - Claims	Claims
FitBit	Wearables & Home Monitoring
Garmin	Wearables & Home Monitoring
Apple Health Kit	Wearables & Home Monitoring
Microsoft	Wearables & Home Monitoring
Precor	Wearables & Home Monitoring
Misfit	Wearables & Home Monitoring
Adidas	Wearables & Home Monitoring
Nokia	Wearables & Home Monitoring
Omron	Wearables & Home Monitoring
Polar	Wearables & Home Monitoring
TomTom	Wearables & Home Monitoring
Life Fitness	Wearables & Home Monitoring
iHealth	Wearables & Home Monitoring
Bayer	Wearables & Home Monitoring
Body Trace	Wearables & Home Monitoring
AccuCheck	Wearables & Home Monitoring
Abbott	Wearables & Home Monitoring
Qardio	Wearables & Home Monitoring

ReliOn	Wearables & Home Monitoring
Trivida	Wearables & Home Monitoring
Nonin	Wearables & Home Monitoring
Strava	Wearables & Home Monitoring
My Fitness Pal	Wearables & Home Monitoring
Fat Secret	Wearables & Home Monitoring
Sony	Wearables & Home Monitoring
HiGi	Wearables & Home Monitoring
AHRQ Clinical Classification System (CCS)	Master Reference & Terminology
Charlson-Deyo and Elixhauser Comorbidity	Master Reference & Terminology
Clinical Care Process Hierarchy	Master Reference & Terminology
CMS Hierarchical Condition Category (HCC)	Master Reference & Terminology
CMS Place of Service	Master Reference & Terminology
LOINC	Master Reference & Terminology
National Drug Codes (NDC)	Master Reference & Terminology
National Provider Identifier (NPI) Registry	Master Reference & Terminology
Provider Taxonomy	Master Reference & Terminology
Rx Norm - Medications	Master Reference & Terminology
CMS/NQF Value Set Authority Center	Master Reference & Terminology
InterSystems HealthShare	Health Information Exchange (HIE)

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