

Healthcare On Azure



Multiple Use Cases



**New Hypothesis
Generation to drive
clinical or
pharmaceutical
research**



**Predictive Modelling
of Disease
Occurrence
along a timeline**



**Identification of
novel variants driving
differentiated care for
sub-populations**

HEALTHCARE ON AZURE PLATFORM: COHORT BROWSER



Can be used to segment populations for analytics



Supports clinical, genomic and financial models



Population genomic overlay linking diseases to their genes, variants, pathways and proteins to enable precision medicine analytics



Immediate access to our 54M patient clinical data-set (billions of EMR records, both inpatient and ambulatory, longitudinal data up to 12 years)

PARTNERING WITH SEVERAL MAJOR HEALTHCARE ACADEMIC SYSTEMS

Cohort Discovery

New



Cohort



Browse Cohort



Analysis



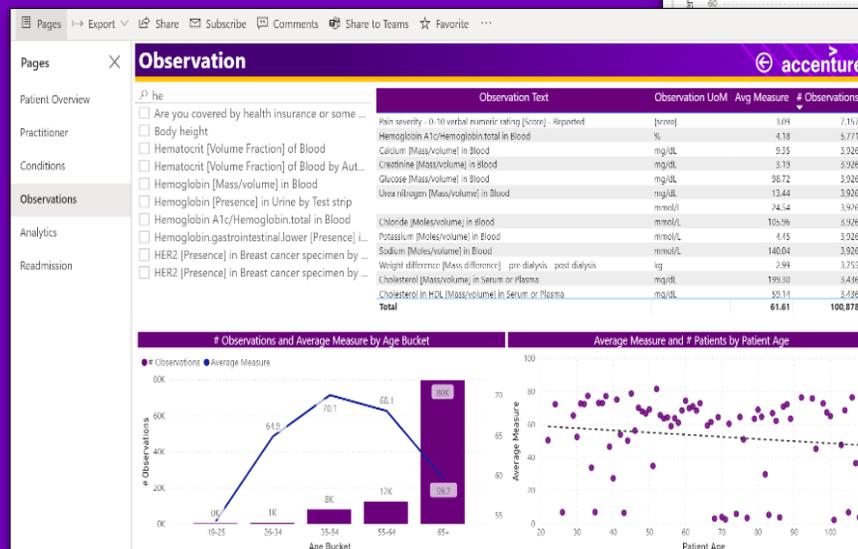
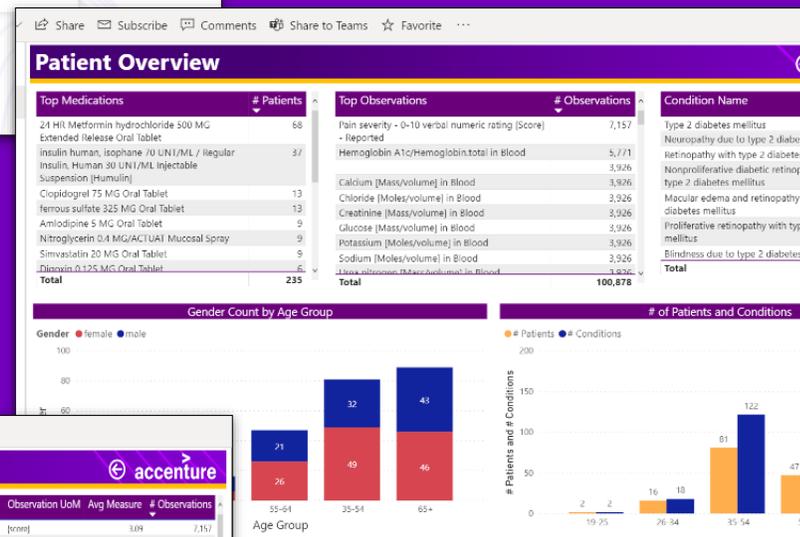
Visualization

Search

Recent

Quickly create, share, and analyze population segments

Analytic modules are pre-built to give an overview of the cohort including labs, rank order of comorbidities, medications and claims.



All records can be visualized for quick analytics, outlier analysis, and data exploration

HEALTH ON AZURE: FOR GOVERNMENT

Analytics Platform reduces data acquisition time from 17 months to 17 minutes for researchers

National and local governments hold invaluable data for responding to rapidly evolving health emergencies, performing drug/vaccine safety trials, and investing in the long-term health of their populations. Honoring local privacy regulations while sharing this data at-scale with researchers and third-parties requires a trusted platform and partner.

Leverage the Health on Azure platform to manage, protect, and anonymize all available citizen health data. Make data available securely for both internal employees and external researchers to quickly discover, profile, and analyze available data-sets.

Cohort

Cohort: Unsaved

Population Size: 3,257

All of these (and)...

- Condition:** Alzheimer's disease
size: 232,836
- Age:** Between 50 and 65 years old
size: 10,415,037

Drag items here

Any of these (or)...

Drag items here

None of these (not)...

Drag items here

Add Criterion

Type: All Types | Group: All of these (and)...

Demographics Criteria:

Criterion: alzheimer

Current Term:

- + Condition: Alzheimer's disease

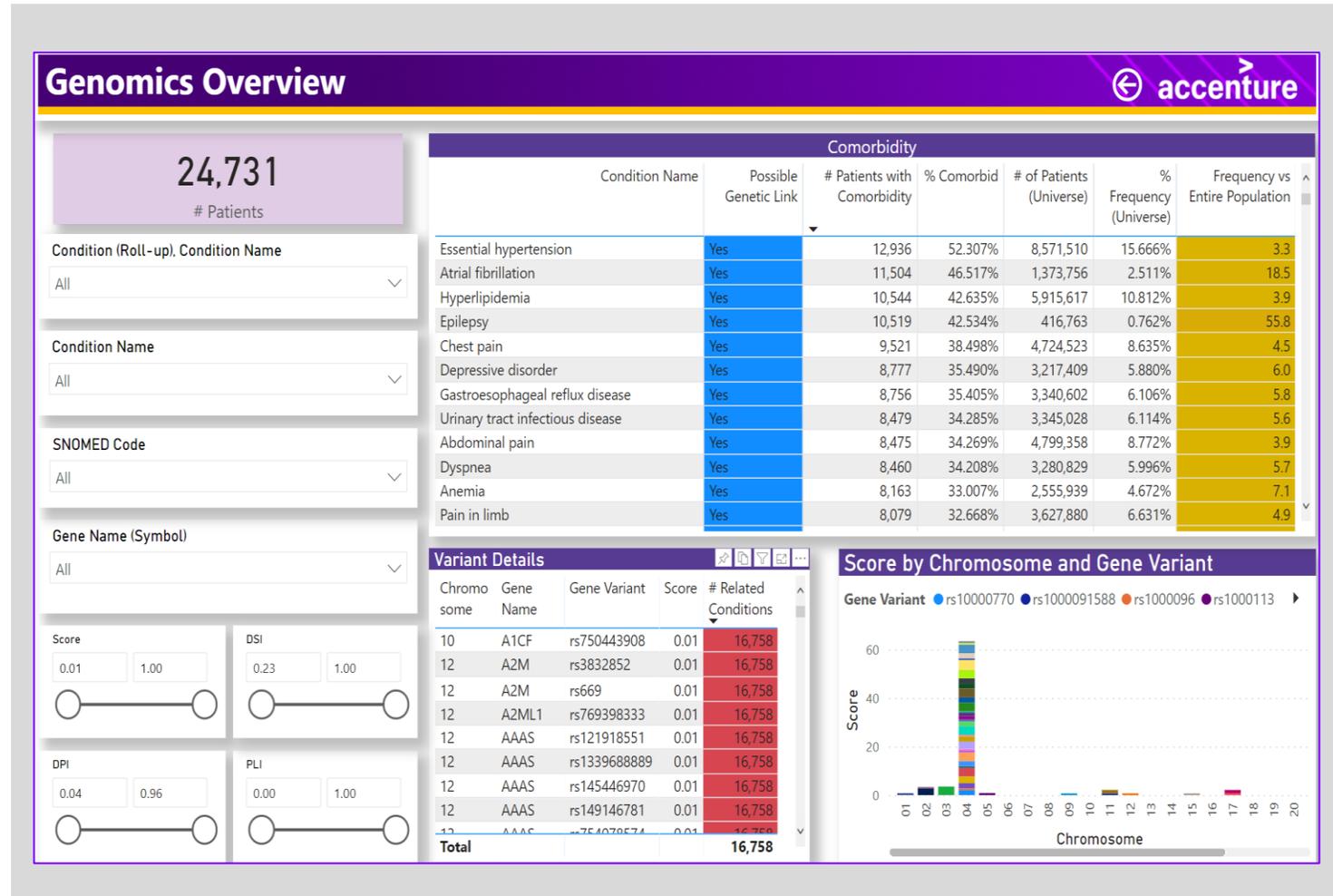
General	Specific
Condition: Dementia (619,427)	Condition: Primary degenerative dementia of the Alzheimer type, senile onset (42,114)
Condition: Cerebral degeneration presenting primarily with dementia (248,483)	Condition: Primary degenerative dementia of the Alzheimer type, presenile onset (11,105)
	Condition: Focal Alzheimer's disease

HEALTH ON AZURE: FOR CLINICIANS & RESEARCHERS

Identify populations and individual at risk for genetic conditions without performing DNA tests

Care providers can improve health outcomes via personalized medicine to develop novel diagnostic and therapeutic solutions for patients who have molecularly complex diseases and are not responding to existing therapies. Understanding the risk factors present in their patients enables better insights and opportunities for value-based care programs.

Physicians and case managers receive easy-to-use dashboards to compare patient outcomes and diagnoses based on phenotypic or genomic linkages



WHY IS THIS IMPORTANT?

THREE REASONS FOR A CXO TO CARE

THE HEALTHCARE ON AZURE SOLUTION PROVIDE MANIFEST BENEFITS ACROSS THE C-SUITE MEANING ORGANIZATIONS CAN MORE EFFECTIVELY MEET THEIR BOARD LEVEL OBJECTIVES

CEO	CFO	CIO	CDO	PROVIDERS	CRO
<ul style="list-style-type: none">• Lifts the reputation of the organization as an innovator• Fosters an "in the new" mindset internally• Promotes agility of the business by removing technology debt	<ul style="list-style-type: none">• Increase market access and drive growth through digital approaches• Segment customer populations to focus drives• Obtain improved business insights through advanced analytics	<ul style="list-style-type: none">• Improve staff retention through provision of current technology• Reduce IT spend through data consolidation and connected tools• Provide integrated technology across boundaries and data types	<ul style="list-style-type: none">• Capture any data type and provide the analytics components for advanced ML data scientists• Meet the requirements for FHIR regulations from ONC and HHS out of the box.• Get real-time insights at the micro-segment cohort level	<ul style="list-style-type: none">• Enabling precision medicine at the point of care• Integration of data both internally and externally to get a 360-degree view of the patient• Safer care for the patient with decision support around care pathways updated based on trigger events	<ul style="list-style-type: none">• Drive Clinical Research with "what if" scenarios around 54 million complete patient records.• Evaluate genomic variants overlain on the clinical data to drive precision medicine• Synthesize Control arms for clinical trials

HEALTH ON AZURE: REPRESENTATIVE USE CASES

Customer Segment	Scenario	Why?	How?
Government	Health Analytics & Research Platform	National and local governments hold invaluable data for responding to rapidly evolving health emergencies, performing drug/vaccine safety trials, and investing in the long-term health of their populations. Honoring local privacy regulations while sharing this data at-scale with researchers and third-parties requires a trusted platform and partner.	Leverage the Health on Azure platform to manage, protect, and anonymize all available citizen health data. Make data available securely for both internal employees and external researchers to quickly discover, profile, and analyze available data-sets.
Government	Infectious Disease and Vaccine Management and Reporting	National, regional, and municipal agencies collect vast amounts of diagnostic test results, immunization records, and other lab data that can be used to quickly target and outreach to high-priority/high-risk populations.	Quickly analyze and segment populations based on demographics, risk factors, and vaccination status. Integrate and create outreach campaigns in a vaccination management platform.
Provider	Precision Medicine	Care providers can improve health outcomes via personalized medicine to develop novel diagnostic and therapeutic solutions for patients who have molecularly complex diseases and are not responding to existing therapies. Understanding the risk factors present in their patients enables better insights and opportunities for value-based care programs.	Provide physicians and case managers with easy-to-use dashboards to compare patient outcomes and diagnoses based on phenotypic or genomic linkages.

HEALTH ON AZURE: REPRESENTATIVE USE CASES

Customer Segment	Scenario	Why?	How?
Research Institution	Genomics Research	Precision Genomic medicine is creating new opportunities in oncology, pharmacology, rare disease diagnosis, and infectious disease management. Organizations look to analytics to reduce the time from novel discovery to routine practice.	Find the genetic causes of diseases leveraging our large clinical dataset combined with institutional data, internal/external research studies
Research Institution	Clinical Research	Having access to real-world longitudinal clinical data integrated with next-generation data analysis tools will accelerate research into disease detection, causes, treatment options, and medication efficacy. Accelerate R&D with target-based drug discovery/candidate drug prioritization efforts.	Provide immediate access to our large clinical data set and tools. Quickly unify and explore all aspects related to causes and treatments for a specific disease or disease class.
Payor	Population Health	Identifying populations and individuals at risk of serious genetic diseases can help improve disease prevention, early diagnosis, and treatment. Genomic information about currently known common variants will provide more accurate risk estimation compared to estimates based on phenotype and family history alone.	Identify individuals at risk of serious genetic diseases to help improve disease prevention, early diagnosis or treatment. Segment at-risk populations to better understand risk profiles, improve quality scores, and predict financial and health outcomes
Life Sciences & Medical Device / Med Tech	R&D or Remote Assist	Accelerate drug development, clinical trial design, and evaluation programs. Identify additional indications for new and existing pharmaceutical products. R&D acceleration & market identification for devices	Define and monitor trial populations with unparalleled precision. Integrate biomedical knowledge (drugs, drug resistance, next-generation sequencing, genetic variants, and structural biology), understand inclusion and exclusion values against a massive population.

HEALTHCARE ON AZURE PLATFORM

Built upon the Microsoft Cloud for Healthcare

Solutions built for specific client needs upon unified components, industry standards, and Microsoft Cloud for Healthcare infrastructure

- Virtual Care
- Disease Registries
- Precision Health
- Care Team Collaboration
- Unified Patient Experience
- Patient Record Access
- Clinical Trials

Data Providers

- Electronic Health Records
- Electronic Medical Records
- Population Health Platforms
- Internet of Medical Things
- Internet of Consumer Things
- Provider Financial Systems
- Insurer Claims and Adjudications
- xRM Relationship Management
- Industry X.0

Access and Normalize

Ingest datasets, streams, and messages. Transform the syntax and translate the semantic.

- Healthcare Data Pipelines (Clinical, Claims, -omics, Device)
- Ontology and Terminology Services
- Syntax Parser (HL7, 837, Stream etc.)
- Anonymization & Pseudonymization
- Always On Ingestion APIs

Enrich and Wrangle

Data accessed in longitudinal form with end-to-end lineage and aligned to >50m patient data set for enrichment.

- Healthcare Data Pipelines (Clinical, Claims, -omics, Device)
- Knowledge Mining
- Data Quality and Standardization
- Cross Healthcare Industry Standard Data models
- Realtime Longitudinal Record APIs

Persist and Query

Cohorts explored dynamically from standards based and relational models without user intervention.

- Research and Exploration Environment
- Knowledge Store
- Clinical Repository
- Commercial Repository
- Realtime Knowledge Access APIs

Provision and Provide

Data provisioned for internal or external analysis.

- Knowledge Mining
- Clinical Interventions Engine
- Healthcare AI/ML Models
- Realtime Provision Data APIs

Analyze

Information analyzed internally or made available for external analyses creating useable, deployable insights. Insights are provided in industry standard forms.

- Exploration and Analysis
- Knowledge Exploitation
- Analytics Rules Engine
- Insight Output Normalization
- Realtime Insights APIs

DATA → INFORMATION → INSIGHTS

Systems of Record

Insight Consumers

- HL7 CDS Hooks
- Electronic Health Records
- Electronic Medical Records
- Population Health Platforms
- Insurer Claims and Adjudications
- xRM Relationship Management
- Teams
- Azure Communication Services
- Dynamics365
- PowerBI

**THANK
YOU**