

Umbizo: Your Strategic Partner in Healthcare Data Transformation

Who We Are

UK-based data science firm specialising in precision medicine, bioinformatics and healthcare analytics.

30+ specialist staff serving global clients across healthcare, life sciences, and clinical research.

Why Umbizo

Healthcare Data Expertise: Proven track record delivering complex data warehouses and analytics platforms for healthcare providers

- **Scale:** Deep domain knowledge of big data lakes and multi-centre European clinical datasets with stringent regulatory compliance (GDPR, PDSG)
- **Integration:** Production-ready / custom built computational workflows that bridge research and clinical practice, HL7 FHIR integration supported
- **Impact:** Direct translation to clinical practice guidelines across European healthcare settings, rapid route to publication readiness

Ongoing EU Horizon project work

Active programme with Charité-Universitätsmedizin Berlin delivering insights that will shape evidence-based cardiovascular care as part of the PROFID project on sudden cardiac death



UMBIZO



Connections we are seeking

We are seeking to work with strategic partner organizations across five critical areas:

- **Clinical Validation:** Healthcare organisations to validate findings in real-world settings under research-driven practice guidelines
- **Drug Discovery:** We support pharmaceutical firms with automated patient stratification, clinical trial optimisation and pipelines for precision medicine development
- **Deep Tech/MedTech:** Biotech companies requiring assistance with novel diagnostics, machine learning, multi-omics pipelines, clinical platforms, data warehousing and AI analytical layers.
- **Research Network Expansion** CROs and academic institutions exploring patient cohorts and needing methodological expertise (such as predictive modelling, long-term outcome tracking)
- **Genomics Service Providers** Advanced sequencing partners and precision medicine centres requiring comprehensive or high throughput molecular profiling

What Partners Gain: Access to deep analytical experience, scalable high throughput bioinformatics pipelines, regulatory-compliant workflows, and a coordinated research network accelerating progress from discovery to clinical implementation.



UMBIZO



Modelling Cardiac Risk

* PROFID

Objective

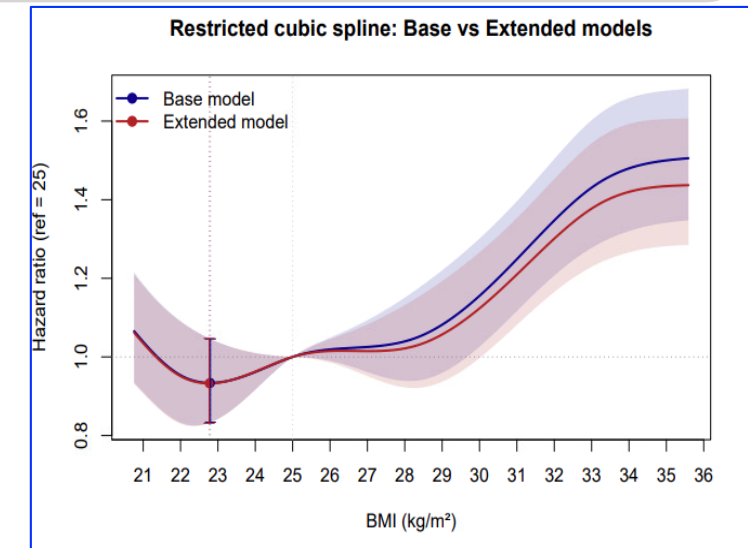
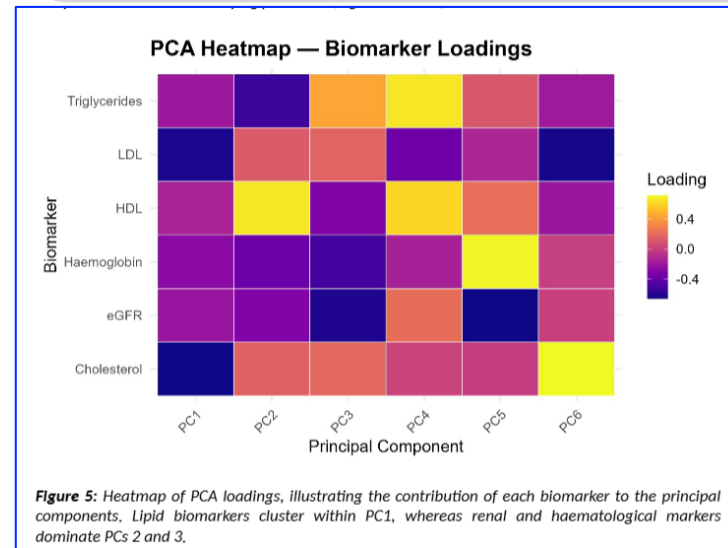
Investigate sudden cardiac death risk in post-myocardial infarction patients

- data collected from 13 countries
- 9 parallel research streams

We assessed clinical outcomes, using epidemiological modelling to identify novel biomarkers, device therapy risks, elucidate temporal patterns, and developed risk stratification ML models for personalised prevention strategies.

Deliverables

- Modelled the time-dependent association between inappropriate ICD therapy and increased all-cause mortality through regression and ML methods
- Identified significant seasonal patterns and temporal trends in SCD incidence
- Characterised 20-year prescribing trends and determinants of guideline-directed medical therapy use and BMI ranges
- Mapped regional variations through multilevel modeling, highlighting modifiable factors for policy interventions
- Established impact of modern heart failure management on SCD rates in patients with reduced LVEF



UMBIZO

Synthetic Patient Populations

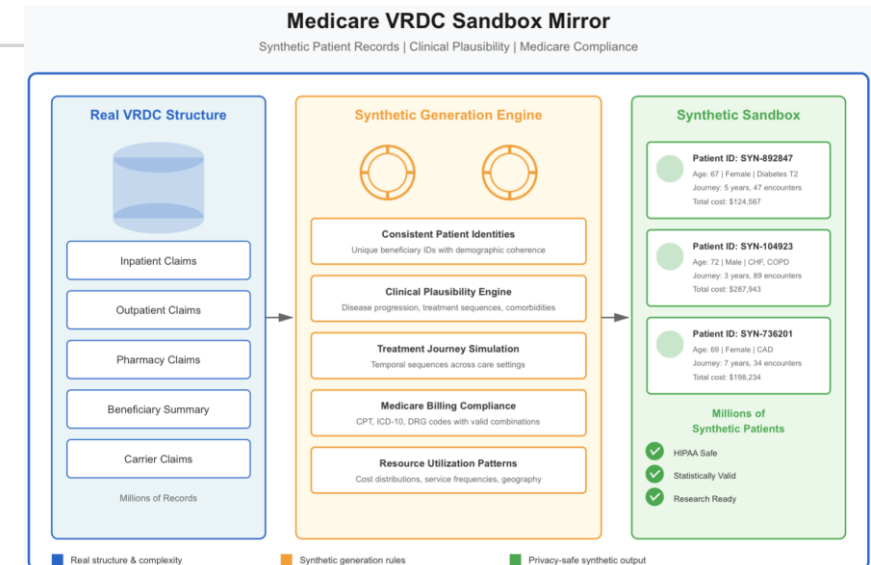
Objective

Develop a sandbox mirror of the VRDC US Medicare Claims data resource, containing millions of synthetic patient records mimicking real-world healthcare complexity and resource use.

Patients needed consistent identities, clinically plausible treatment journeys, and Medicare-compliant billing patterns across different care settings.

Deliverables

- Enabled generation of 1 million synthetic patient records through a scalable Databricks platform using Synthea and custom pre and post processing pipelines
- Aligned patient geography, insurance patterns and demographics to CRC data to create epidemiologically sound population models
- Built clinically plausible, longitudinal patient journeys modelling authentic disease progression and resource use across multiple therapeutic areas
- Developed a sophisticated code mapping engine for accurate translation of SNOMED to Medicare-compliant ICD-10 and CPT codes
- Executed a hands-on knowledge transfer programme to enable the engineering team
- Maintain a live, evolving system



Multionomics Pipelines

Objective

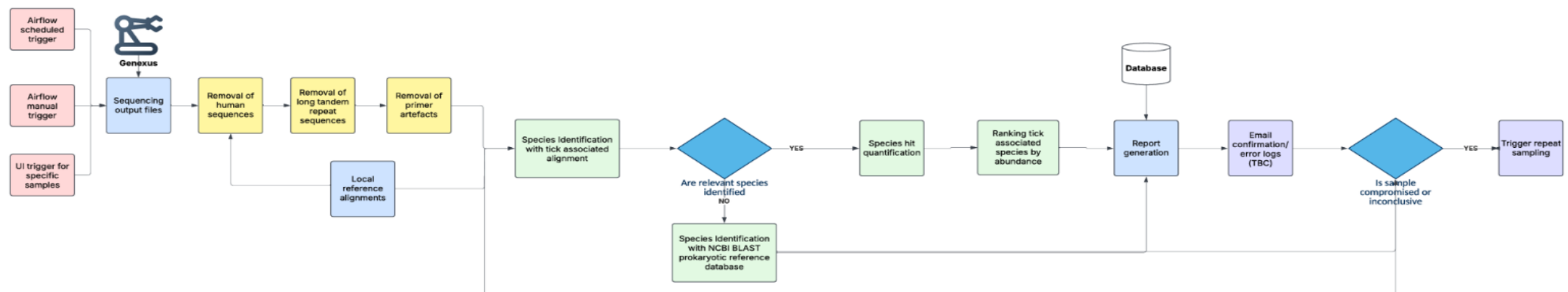
A precision oncology provider required a network of automated pipelines to support their multi-omics approach to personalised cancer treatment

Improve diagnostic accuracy for Lyme disease testing and commercialise the process

We needed to fully integrate a new Sapio LIMS system, develop postgresSQL databases and host the pipelines under a HIPAA compliant Amazon Web Services architecture

Deliverables

- Automated pipelines covering RNASeq, spatial biology (Akoya), NGS panel processing and PDF report generation to support optimal choices in precision medicine
- Significantly improved Lyme disease testing sensitivity by 400% through panel redesign and BLASTn database integration, while maintaining high specificity
- Established automated, parallelised workflow infrastructure using SLURM and Apache Airflow for efficient orchestration
- Delivered a reproducible codebase hosted on GitHub and provisioned on AWS
- Full integration with Sapio LIMS system



UMBIZO

Translating Data Into Actionable Insights
www.umbizo.co.uk



UMBIZO



Contact: Heather Robinson / Zoher Kapacee
heatherrobinson@umbizo.co.uk
zoherkapacee@umbizo.co.uk

+44 7880652950
