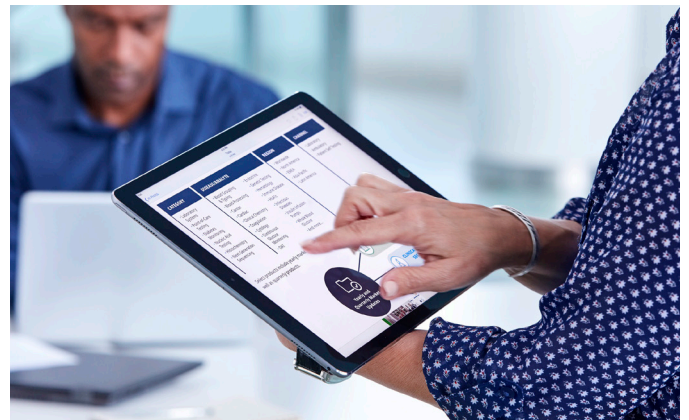


IQVIA E360™ Features and Capabilities Introduction

IQVIA E360™ Platform is a self-service data exploration, analytics, and visualization platform. Helping you optimize research for Clinical Development, HEOR & Data Science, Commercial teams as well as Government agencies.

IQVIA E360™ enables faster business decisions from data to actionable results. E360™ can be tailored to the needs of each user, making it easy for anyone in your organization to understand and apply business insights.



Our vision is to support users across the spectrum from data scientist to business executive in the production, dissemination and consumption of Real World evidence, efficiently created from Real World data from across treatment areas, countries and data types, wherever that data may be.

For Pharma, Life Science, Payers, Providers and Regulators, we aim to release the inherent value within real-world data by enabling the generation and dissemination of compelling evidence that helps to better inform healthcare decision making and ultimately improve outcomes for patients.

HOW CAN WE HELP YOU?

- Real World Evidence/Analytics - You can: Optimize RWD access and usage to create reliable and reusable evidence across the enterprise.

- HEOR – You Can: Explore data to understand what research questions to tackle first. Secondary data first approach allowing for HEOR database queries and FDA submission evidence
- EPI and Data Scientists – You Can: Conduct clinical trial/study feasibility/design, hypothesis development and retrospective studies
- Brand Lead – You Can: Communicate seamlessly with your colleagues by tracking and monitoring standard and repetitive analysis. Clearly articulate new drug opportunities and patient journey/disease history (studies on demand) including Commercial source-of-business type tracking
- Government/Regulatory - You can: Use E360's dataset explorer and patient visualiser for a deep understanding of patient experience and disease progression to inform policy decision making

KEY FEATURES:

- Access to 1 billion+ patient lives
- Analytics on any dataset regardless of location
- Real-time cohort development
- Save time with reusable building blocks (cohorts, codelists, definitions, analytics, visualizations)
- Optimize RWD access and usage across the entire company
- Create reliable and reusable evidence across the company
- Integrate 3rd-party data/tools, as well as internal data

PLATFORM APPLICATION CAPABILITIES

Platform - The IQVIA E360™ Platform is the foundation that everything within E360™ is built upon. All E360™ applications are available from the navigation bar, giving users the ability to swap between the different applications with an easy to use interface. Workspaces is the central hub of the Platform, allowing users to store,

share and download assets created within the E360™ Platform. These various assets can be related to each other within the context of a workspace, but do not need to be related to each other to co-exist. Access to a workspace itself is controlled by the workspace owner. Owners can grant and revoke permissions to their workspace by other users.

All aspects of security of data and applications is handled by the E360™ Platform, allowing multiple permission based scenarios to adapt to a specific client need.

KEY FUNCTIONALITY:

- Big data hosting and management
- View which applications and datasets you have access to
- Store, share and download assets created within the E360™ Platform
- Workspace API allows interaction with 3rd party applications

The screenshot displays the E360 Platform interface. At the top, there's a navigation bar with the E360 logo and the user's name, Jesus Vesquez. Below the navigation bar, a welcome message reads: "Hi Jesus, make validated, insightful decisions from real-world data".

The main content area is divided into four interactive cards:

- Explore data assets:** Shows a world map and text: "Explore medical and claims populations from across the globe licensable from IQVIA".
- Create populations:** Shows a cohort definition interface with text: "Build and iterate cohorts defining populations ready for feasibility or analysis".
- Build analytic ready data:** Shows a data management interface with text: "Create analytic datasets ready for consumption in analytics, BI and reporting tools".
- Run analytics:** Shows a dashboard with various charts and text: "Execute analytical methods, from descriptive to genomic, using the extensible analytics workbench".

Below these cards is a table titled "Available medical and claims populations".

	NAME	FORMAT	RELEASE	START	END	PATIENTS	EVENTS
Australia	LPD EMR v5	OMOP S	Dec 2019	< Jan 1921	Dec 2019	6+ Million	156+ Million
Australia	LPD EMR v5	OMOP S	Jun 2020	< Jan 1921	Jun 2020	3+ Million	158+ Million
Australia	LPD EMR v5	OMOP S	Mar 2020	< Jan 1921	Mar 2020	3+ Million	155+ Million
Belgium	LPD Belgium	Native	Dec 2019	Nov 2009	Nov 2019	1+ Million	108+ Million
Belgium	LPD Belgium v5	OMOP S	Sep 2019	Sep 2009	Aug 2019	1+ Million	122+ Million
Belgium	LPD Belgium v5	OMOP S	Sep 2019	< Sep 1923	Sep 2019	2+ Million	139+ Million
Brazil	Brazil	OMOP S	Oct 2018	< Jan 1930	Oct 2018	2+ Million	160+ Million
Brazil	Brazil	OMOP S	Dec 2017	Oct 2012	Dec 2017	109+ Million	230+ Million
Canada	Ambulatory EMR v5	OMOP S	Jul 2020	< Jun 1918	Aug 2020	1+ Million	75+ Million
Canada	Ambulatory EMR v5	OMOP S	Apr 2020	< Jun 1917	Apr 2020	1+ Million	74+ Million
Canada	Ambulatory EMR v5	OMOP S	Oct 2019	< Jun 1917	Oct 2019	1+ Million	70+ Million
France	DA EMR v5	OMOP S	Q2 2020	Jun 2010	Jun 2020	7+ Million	262+ Million

On the right side of the page, there are sections for "Announcements" (stating "There are currently no announcements.") and "Documentation" (with a link to "Online Help" and a note: "Visit our help site for assistance over a range of topics across the E360™ ecosystem").

Landing page view showing application titles and data you have access to.

Workspaces – The IQVIA E360™ Workspaces allows you to organize, store and share work across your organization or working groups.

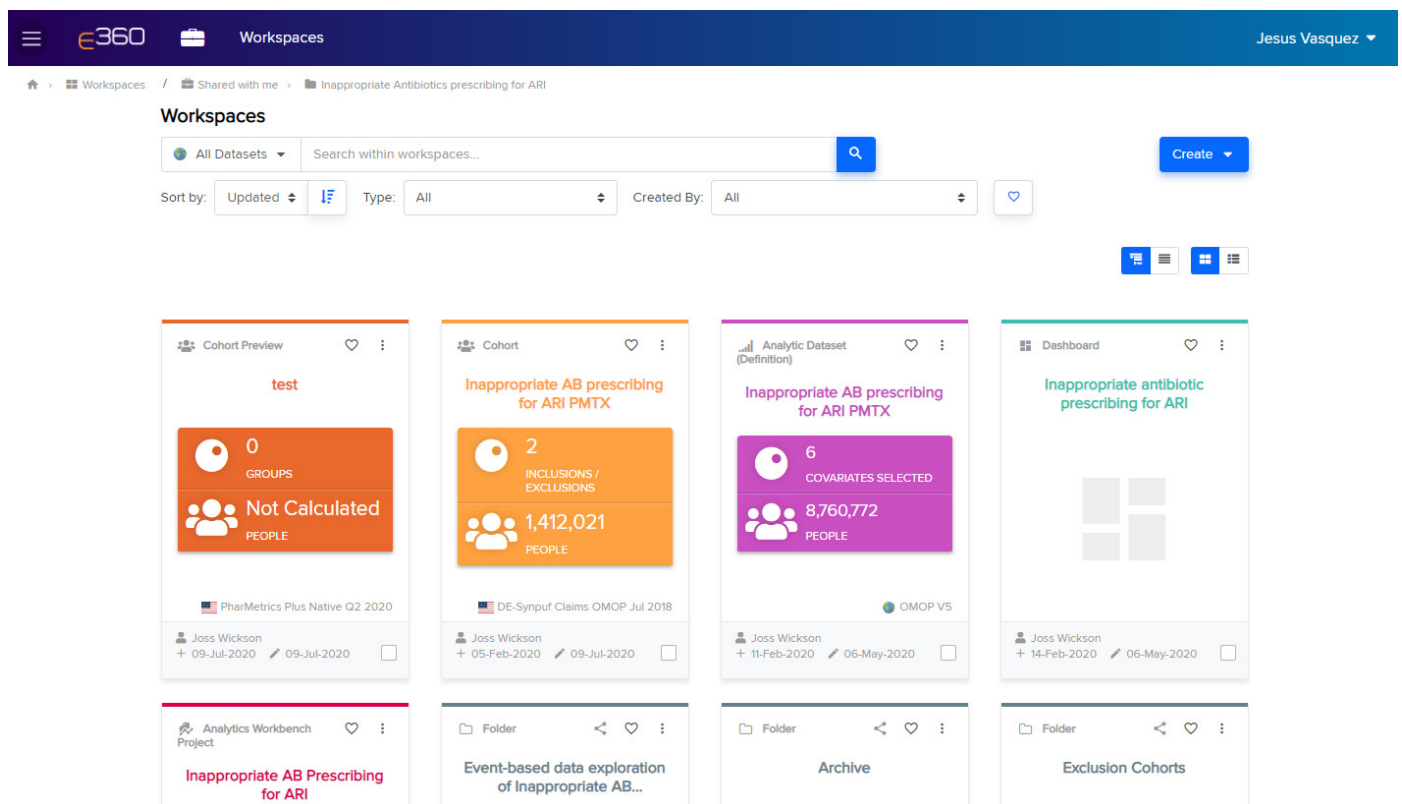
These various work assets can be created on or off platform with access directly in the workspaces UI, or via our extensive API.

Access to the workspace and work contained within it is controlled by the workspace owner. Owners can grant and revoke permissions for their workspace to other users.

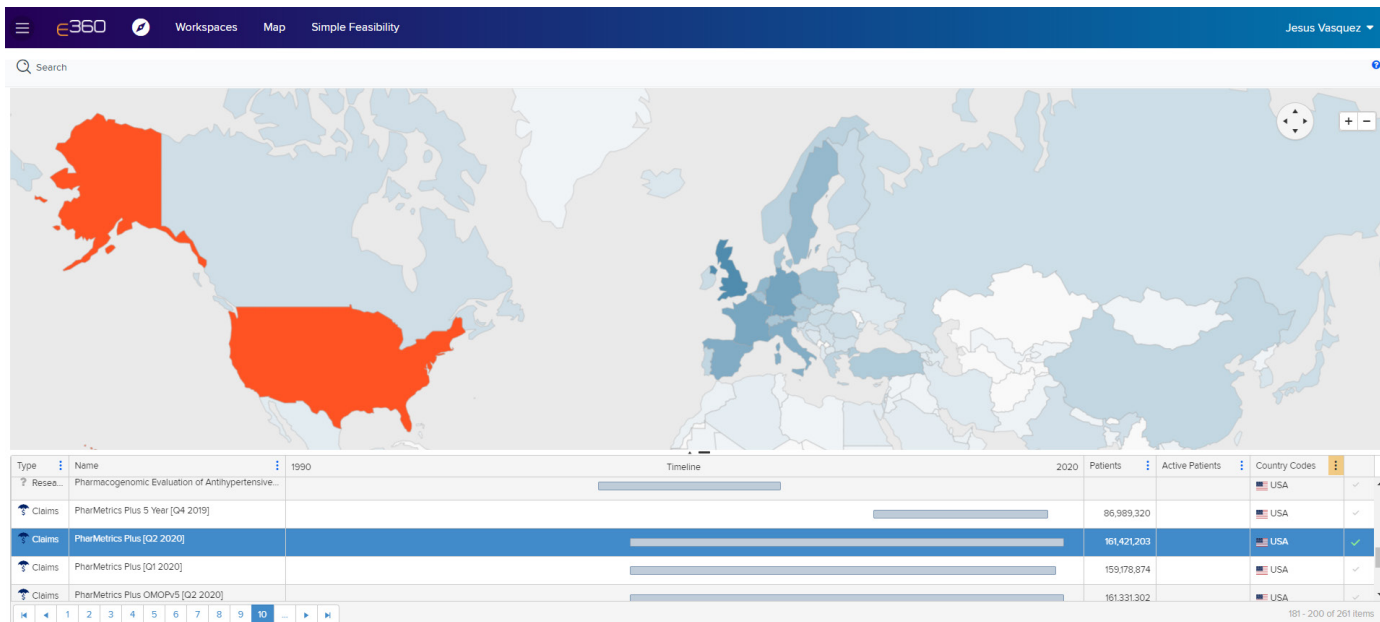
Dataset Explorer - Using IQVIA's E360™ Dataset Explorer you can find the next data asset for your research study or analytics. The tool allows you to search different selection criteria (such as geography, therapeutic area, analysis type, etc.) to view meta-data about specific datasets.

KEY FUNCTIONALITY:

- Interactive dataset explorer that allows advanced searching on key dataset variables
- Refine the search to pinpoint relevant datasets for research
- Search via both geographical map and table interfaces
- Download reports and comparison tables
- View interactive visualizations on E360™ loaded datasets



Workspaces allow users to store, share and download assets created by E360™.



Cohort Builder – IQVIA’s E360™ Cohort Builder allows for the rapid selecting and understanding the feasibility of performing a study against populations. Using optimized workflows that enable advanced cohort definitions returning patient counts even on the largest of datasets.

With over 1 billion patient lives available for analysis in Cohort Builder, almost every disease and therapy area are available for analysis.

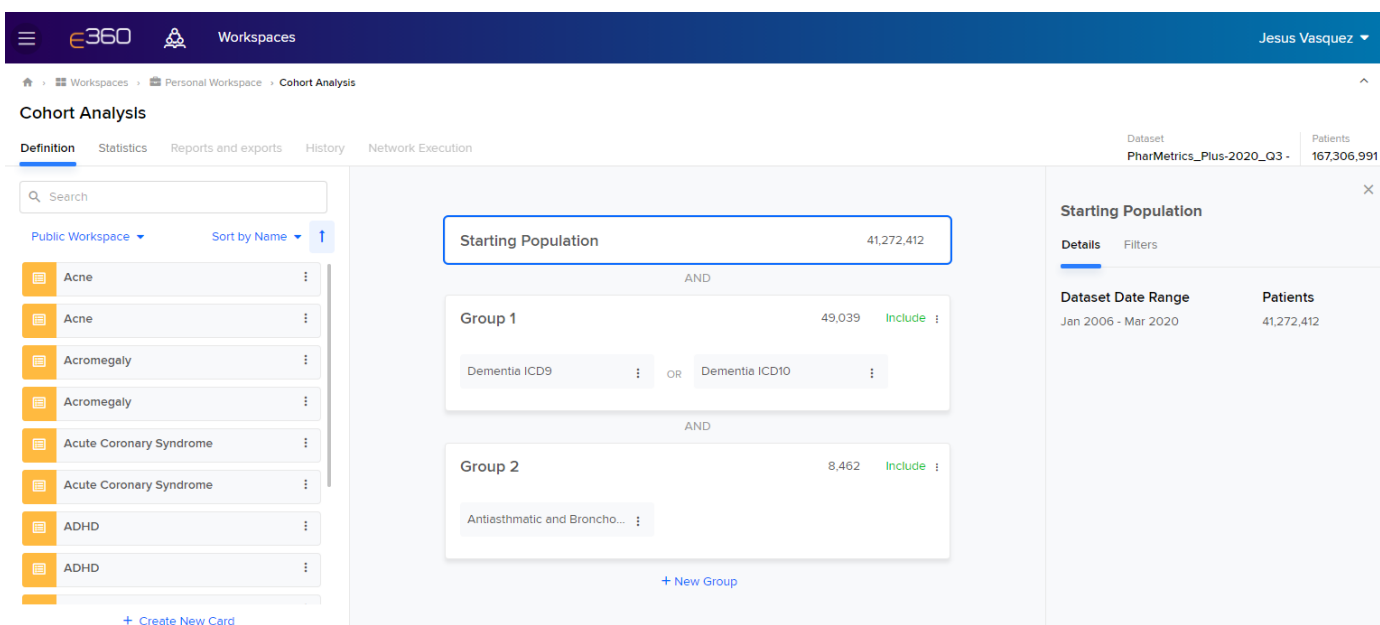
Cohort Builder lets you manage, build, and apply codelists, test and clinical results, and various demographic and geographic filters on multiple datasets spanning geographies across the globe.

Cohort Builder also includes various reporting capabilities including: patient visualization, attrition reporting, incidence and prevalence, cohort definition reporting, patient group by location etc.

Cohort Builder seamlessly integrates with both native and OMOP data sources allowing researchers to use one platform to analyze all RWD data.

KEY FUNCTIONALITY:

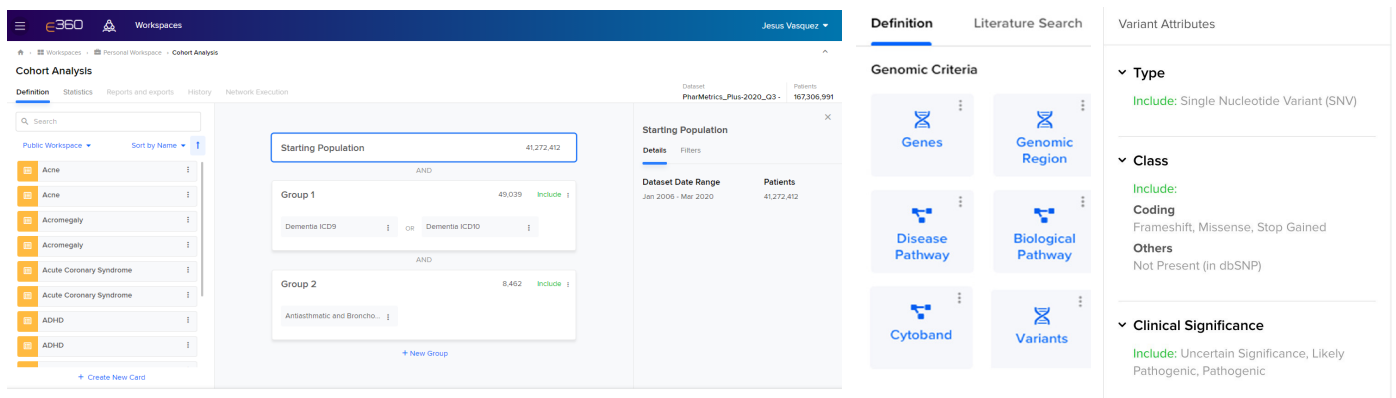
- Real time protocol creation and optimization
- Trial feasibility with real world patient populations
- Integrated codelist management to create definitions of therapy areas, treatments, and procedures, for use as patient selection criteria or covariates
- Define filters by geography, and other demographic variables
- Handles multiple datasets (Both Native and OMOP format) with inline dataset switching to compare datasets



Genomics – E360™ Genomics is a scalable, privacy-preserving genotypic-phenotypic research platform that provides an efficient way to conduct genomic research with genomic and clinical databases. E360™ Genomics platform provides life science customers immediate access to aggregated data at scale. Enabling them to conduct a wide range of research including association studies of genomics and observable traits, comparative efficacy and safety trials, and burden-of-illness and discovery analytics, by using de-identified data in a secure environment that protects patients' privacy.

KEY FUNCTIONALITY:

- Ability to query linked clinico-genomic data and build cohorts using both clinical and genomic filters
- Instant availability of tools and analytic methods that are commonly used in genomic research
- Seamlessly connecting clinico-genomic data from multiple locations for integrated analysis in one UI



Codelists Manager - Build disease and therapy definitions for use in queries. Codelists are the common currency of cohort building (used for inclusion/ exclusion criteria) and for analytics (used for feature/dimension definition).

KEY FUNCTIONALITY:

- Support for multiple dataset terminologies and hierarchies
- Complex, multi-column searching and filtering to target precise disease and treatment definitions
- Collaboration – multiple users can share and edit codelists, and codelists can be reused in multiple studies or cohorts
- Downloadable codelist history and version control showing changes linked to users
- Codelist import and export, for compatibility with other sources

IQVIA E360™ Codelist Manager lets you set up, edit and share definitions of therapy areas, treatments and procedures, for use as patient selection criteria or covariates. With advanced search features such as multi-column filtering, code relationship navigation, support for OMOP and SNOMED hierarchies, multi-code selection and complex text searches – Codelist Manager is a one-stop shop for your medical terminology definitions.

E360™ supports custom codelist import, reporting and audit of definitions, with exportable codelists and a stored search history with user notations.

Workspaces Jesus Vasquez

Workspaces / Personal Workspace / NCLS codelist Codelist

NCLS codelist Codelist

Generated Automatically For Card: NCLS codelist

VOCABULARY NAME: OMOP TOTAL CODES: 0

[Export](#) [Import](#) [Return to Card](#) [Save](#)

My Codelist [Browse Codes](#)

Showing 49 of 49 [Add All](#) [Advanced Search](#)

Source Code	Source Concept	Source Name	Source Domain	Source Vocabulary	Source Class	Deprecated
C95	Search ...	Search ...	"Condition"	Search ...	Search ...	Search ...
C95.0	1407004	Acute leukaemia of un...	Condition	ICD10CN	ICD10 code	N
C95.000	1407005	Acute leukaemia of un...	Condition	ICD10CN	ICD10 code	N
C95.0	42485283	Acute leukaemia of un...	Condition	KCD7	KCD7 code	N
C95.0	45600572	Acute leukaemia of un...	Condition	ICD10	ICD10 code	N
C95.0	1567712	Acute leukemia of uns...	Condition	ICD10CM	4-char nonbill code	N
C95.00	45571579	Acute leukemia of uns...	Condition	ICD10CM	5-char billing code	N
C95.02	45552317	Acute leukemia of uns...	Condition	ICD10CM	5-char billing code	N
C95.01	45590967	Acute leukemia of uns...	Condition	ICD10CM	5-char billing code	N
c95	2020317755	c95	Condition	US_Claims_Unknown...	Concept Class	N
C9504	2021055339	C9504	Condition	US_Claims_Unknown...	Concept Class	N

Powered By | © 2020 IQVIA Inc. Timeleft: 00:29:41

Reporting Capabilities - E360™ reporting capabilities include descriptive analytics within Cohort Builder and allows you to view your chosen cohort definition at an aggregate level, these views include:

- Geographical view
- Age/Gender distributions
- Events over time
- Boolean (and/or/not/true/false) Logic Comparisons
- Attrition Reporting
- Patient Visualiser and Patient Journey reporting
- Top N Reporting (Top Therapy and Diagnostics within your cohort)

Workspaces - Patient Visualiser

Patient Visualiser

Pharmetrics Plus v5 - Q1 2021 [Cohort](#) [Cohort Analysis](#) [981911](#) [Alignment](#) [Create Patient Journey Report](#) [Save Patient List](#)

Configuration

Domain Filter

- Condition
- Device Exposure
- Drug
- Measurement
- Observation
- Procedure

Study Period

From: To:

Patient Display

Every patient

Random patients

Other Filters

Use Marked Data

Workspaces - Patient Visualiser

TopN Report

Pharmetrics Plus v5 - Q1 2021 [Cohort](#) [Cohort Analysis](#) [981911](#) [Return to Cohort](#)

Domain: Vocabulary: Number of codes: Show Counts For: [Run](#)

Advanced Export options

[Export as CSV](#) [Export as Excel](#) [Create Visualisation](#)

Code	Description	Count	Cohort %	Dataset %	% Difference	Action
19128020	[5 (azithromycin 250 MG Oral Tablet)] Pack	428402	43.629	13.712	29.917	Create Codelist
1551970	prednisone 20 MG Oral Tablet	390639	39.812	6.762	29.05	Create Codelist
1914649	NDMA021457 200 ACTUAT abutrolol 0.09 MG/ACTUAT Malted Dose Intrahe[ProAR]	328281	33.433	5.195	28.278	Create Codelist
115486	fentanyl 01 MG	323661	32.962	6.985	25.977	Create Codelist
35605480	ondansetron injection	314768	32.057	8.501	23.556	Create Codelist
4016205	acetyaminophen 325 MG / hydrocodone bitartrate 5 MG Oral Tablet	312528	31.829	9.081	22.748	Create Codelist
40064205	mebexalam injectable Solution	310276	31.593	6.498	25.095	Create Codelist
19129398	[21 (methylenediphosphonate 4 MG Oral Tablet)] Pack	300480	30.602	7.51	23.092	Create Codelist
1918606	dexamethasone 1 MG	293248	29.865	7.881	21.984	Create Codelist
1910197	amoxicillin 875 MG / clavulanate 125 MG Oral Tablet	293104	29.85	9.131	20.719	Create Codelist

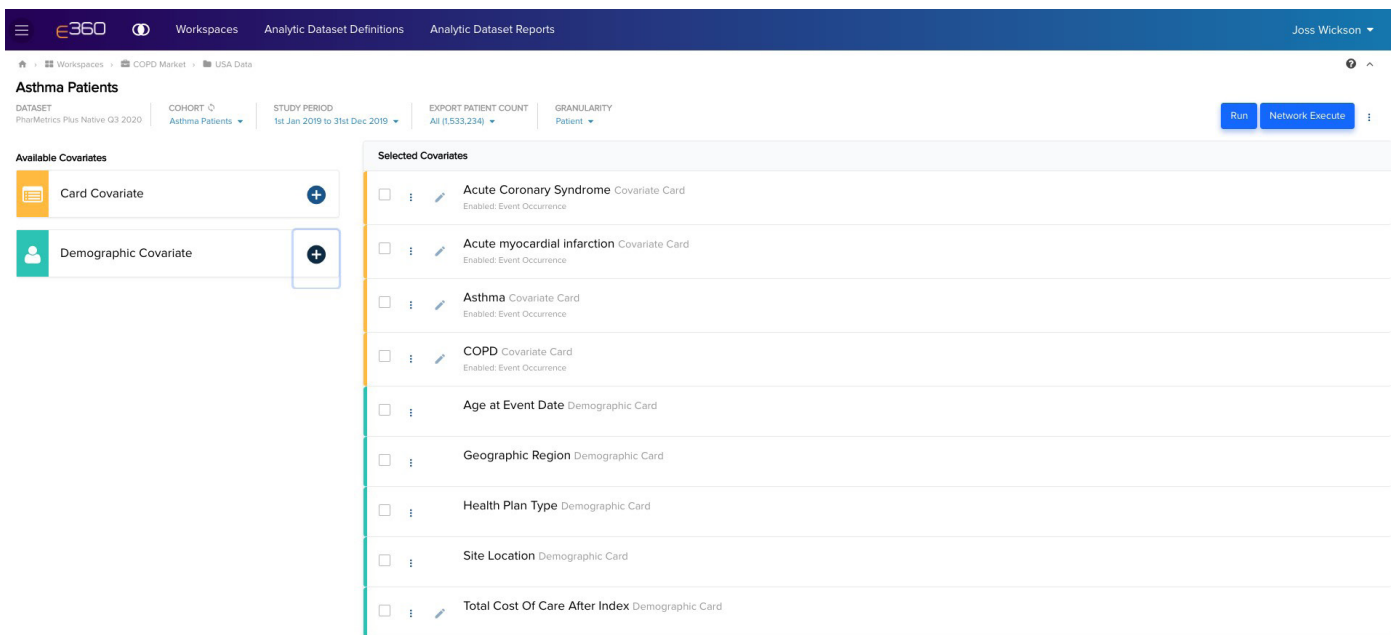
Analytic Dataset Tools - The IQVIA E360™ Analytic Dataset Tools allows you to build powerful covariate and time-based analytic datasets from any supported EMR, Claims or medical database within E360™. It provides a generic mechanism for generating analytic-ready files using codelist and phenotype definition libraries to define analytical features.

E360™ Analytics Dataset Tools allows the production of covariate-based selection and refinement for diagnosis, test, and treatment covariates, as well as time based columns dependent on clinical or therapy-based index dates, demographics, or other drug usage patterns.

These generic analytic-ready datasets can be used with our own E360™ Analytics Workbench or imported into other statistical platforms such as SAS, R, or Python and locally developed analytics tools. The toolset also allows output of aggregated, clinical values and specific tests to form part of your covariate analysis.

KEY FUNCTIONALITY:

- Selection and refinement for matching demographic, diagnosis, test, and treatment covariates
- Export time-based columns dependent on index date, demographics, or other usage patterns
- Patient or Event level Analytics Datasets are both available
- Treatment and comparator group cohort generation and export
- Fully compatible with all aspects of E360™ reporting and metrics functionality



Analytic Workbench – IQVIA’s E360™ Analytics Workbench provides a generalized framework for delivering sophisticated analytical methods that are portable across Real World Data sets. It includes a rapidly growing pre-configured library of basic and advanced HEOR, Commercial and Machine-learning analytical methods along with an extensible framework for custom development.

With complex protocols and end-points simulation, precise “what-if” analysis, incidence and prevalence analysis, and many other methods, Analytics Workbench has the right tool for the job at hand.

Analytics Workbench works on all E360™ loaded datasets; OMOP, LPD and native format, and on non-E360™ data.

KEY FUNCTIONALITY:

- Growing collection of Analytic Method categories
- Fully supports data generated by E360™ Analytics Dataset Output from internal and external data sources

Workspaces

All Datasets Search within workspaces... Create

Sort by: Updated Type: All Created By: All

The screenshot displays a workspace dashboard with eight cards arranged in a 2x4 grid. Each card has a header, a main visualization or document preview, and a footer with the user's name and date. The cards are: 1. Document: Project Manifest, containing a text document 'ProjectLog-Eliquis-Users...'. 2. Visualisation: Persistence Analysis, showing a line graph of Persistence vs Duration (months). 3. Visualisation: Compliance Analysis, showing a bar chart of Compliance vs Regime. 4. Visualisation: Line of Therapy, showing a sunburst chart. 5. Visualisation: Top Comedication Regimes, showing a bar chart of Count vs Regime. 6. Visualisation: Source of Business, showing a stacked bar chart of Total Source of Business (R# Count) vs Medication. 7. Visualisation: Patients on Drug, showing a line graph of Patients vs Month. 8. Document: Prescription Model, containing an Excel document 'Prescription-Model-Eliquis...'. The user 'Robin Murray' is listed on the bottom of each card, with a date of '16-Sep-2020'.

Collaboration Tools - E360™ collaboration capabilities allow you to create customized views, bringing information together from across the platform into one place.

Enables executives and evidence consumers to explore and interact with analyses without modifying the underlying scientific methodology.

KEY FUNCTIONALITY:

- Create dashboards to highlight your workspace assets

- Use the built-in themes to customize the appearance of your dashboard
- Enhance your dashboards with custom images and text

For executives and evidence consumers to explore and interact with analyses without modifying the underlying scientific methodology.

Systemic Lupus Erythematosus

Unlock Interactive Report

1. Introduction

2. Population Demographics

- 2.1 Germany (German DA OMOP)
- 2.2 France (France DA OMOP)
- 2.3 UK (UK IMRD OMOP)

3. Prescription Modeling

- 3.1 Germany
- 3.2 France
- 3.3 UK

4. Patient Characteristics

- 4.1 Germany
- 4.2 France
- 4.3 UK

5. Comorbidity analysis

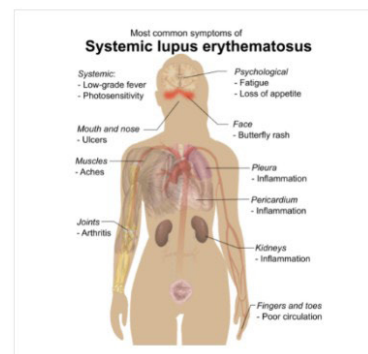
- 5.1 Germany
- 5.2 France
- 5.3 UK

1. Introduction

Lupus, technically known as systemic lupus erythematosus (SLE), is an autoimmune disease in which the body's immune system mistakenly attacks healthy tissue in many parts of the body.^[1] Symptoms vary between people and may be mild to severe.^[1] Common symptoms include **painful and swollen joints**, fever, chest pain, hair loss, mouth ulcers, swollen lymph nodes, feeling tired, and a red rash which is most commonly on the face.^[1] Often there are periods of illness, called flares, and periods of remission during which there are few symptoms.^[1]

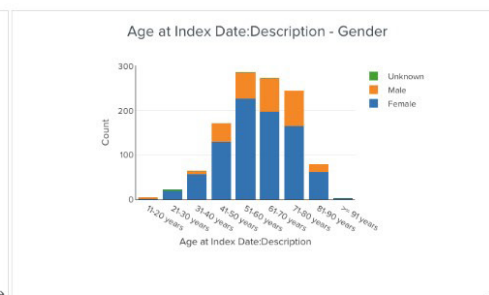
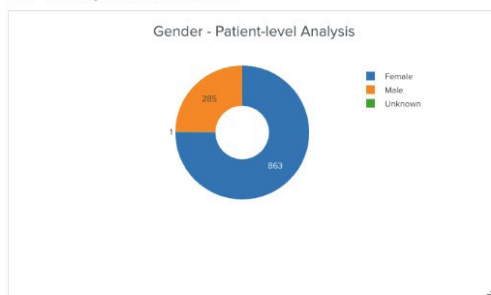
The cause of SLE is not clear.^[1] It is thought to involve genetics together with environmental factors.^[4] Among identical twins, if one is affected there is a 24% chance the other one will be as well.^[1] Female sex hormones, sunlight, smoking, vitamin D deficiency, and certain infections are also believed to increase the risk.^[4] The mechanism involves an immune response by autoantibodies against a person's own tissues.^[1] These are most commonly anti-nuclear antibodies and they result in inflammation.^[1] Diagnosis can be difficult and is based on a combination of symptoms and laboratory tests.^[1] There are a number of other kinds of lupus erythematosus including discoid lupus erythematosus, neonatal lupus, and subacute cutaneous lupus erythematosus.^[1]

There is no cure for SLE.^[1] Treatments may include NSAIDs, corticosteroids, immunosuppressants, hydroxychloroquine, and methotrexate.^[1] Although corticosteroids are rapidly effective, long-term use results in side effects.^[3] Alternative medicine has not been shown to affect the disease.^[1] Life expectancy is lower among people with SLE.^[6] SLE significantly increases the risk of cardiovascular disease with this being the most common cause of death.^[4] With modern treatment about 80% of those affected survive more than 15 years.^[8] Women with lupus have pregnancies that are higher risk but are mostly successful.^[1]



2. Population Demographics

2.1 Germany (German DA OMOP)



*Index date refers to initial diagnosis of SLE