

# Check Yourself:

## Edit Checks and Queries Made Easy with Shiny

Maya Gans & Kirsty Lauderdale

# Agenda

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Introduction and Challenges



Why Shiny



Solution Overview



Core Features



Results and Future Directions



# Data Review: Complex, Manual, Fragmented

01

## Fragmented, manual tooling

Static listings, Excel trackers, SAS scripts are slow, unscalable, inconsistent

02

## Exploding data complexity

EDC, labs, ePRO, wearables ... more sources, more integration burden

03

## High regulatory bar

CDISC, 21 CFR Part 11 demand traceability, auditability, reproducibility

**We need automation, transparency, and real-time interactivity - not more spreadsheets.**



# From Static Listings to Interactive Review

R + Shiny delivers an **open-source, customizable, traceable** platform purpose-built for Data Management.

## Dynamic Visuals

Explore data patterns with interactive charts and drill-downs

## Real-Time Checks

Execute validation rules on the fly, see results immediately

## Automated Queries

Generate, track, and resolve queries in a single workflow



# Modular Architecture: Edit Checks & Queries

## Data Access & Ingestion

Loads SDTM/ADaM via APIs or databases



## Visualization Layer

Dashboards, filters, drill-downs



## Rule Engine

Configurable edit checks (YAML/JSON/R)



## Query Module

Auto-generates queries with audit trails

## Technical Foundations

- Reactive programming
- Role-based access & audit logging
- CI/CD with Docker

**End-to-end framework** connecting data, logic, and user action.



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STUDY

# NATEVBA\_DATA

RECORDS

## 2176



### 214

OPEN



### 5

ANSWERED



### 91

CLOSED



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743

712

91

5

214

Domain

Questions

This is additional information about Natevba\_Data. [Study Protocol](#)

AE



31



32



10



0



38



DM



23



14



11



1



23



LB



253



231



0



0



1



VS



436



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70



4



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Domain Queries

AE 31 32 10 0 38

DM 23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID<br>Subject ID | AGE<br>Age           | BIRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity  | RACE<br>Race         | SEX<br>Sex           | RACEOTH<br>If Other, Specify | CHILDPOT             | NREASOTH             | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDTC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------------|------------------------------|----------------------|----------------------|-------------------------|------------------------|-------------------------------------------|
|        |     | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/>         | <input type="text"/> | <input type="text"/> | <input type="text"/>    | <input type="text"/>   | <input type="text"/>                      |
|        |     | US-101                 | US-101-0001          | 41                   | 1983-11-15             | NOT HISPANIC OR L    | -                    | F                    | -                            | N                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0003          | 49                   | 1971-07-16             | NOT HISPANIC OR L    | NATIVE HAWAIIAN C    | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0004          | 31                   | 1989-02-06             | HISPANIC OR LATIN    | BLACK OR AFRICAN     | F                    | -                            | N                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0005          | 31                   | 1990-02-09             | NOT REPORTED         | AMERICAN INDIAN C    | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0006          | 61                   | 1963-03-20             | NOT HISPANIC OR L    | WHITE                | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0008          | 35                   | 1985-07-29             | NOT HISPANIC OR L    | OTHER                | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0009          | 75                   | 1945-06-07             | NOT REPORTED         | NATIVE HAWAIIAN C    | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0010          | 44                   | 1979-08-13             | NOT REPORTED         | ASIAN                | F                    | -                            | N                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0011          | 45                   | 1975-07-31             | HISPANIC OR LATIN    | ASIAN                | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0012          | 51                   | 1971-03-26             | HISPANIC OR LATIN    | BLACK OR AFRICAN     | F                    | -                            | -                    | -                    | -                       | -                      | -                                         |

LB 253 231 0 0 1

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# Dynamic Filters and Drill Downs

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AE

31 32 10 0 38

DM

23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID<br>Subject ID | SEX<br>Sex | AGE<br>Age | BRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity | RACE<br>Race      | RACEOTH<br>If Other, Specify | CHILDPOT | NREASOTH | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDTC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|----------------------|------------|------------|-----------------------|---------------------|-------------------|------------------------------|----------|----------|-------------------------|------------------------|-------------------------------------------|
| 1      |     | US-101                 | US-101-0001          | F          | 41         | 1983-11-15            | NOT HISPANIC OR L   | -                 | -                            | N        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0002          | M          | 35         | 1985-03-16            | NOT REPORTED        | AMERICAN INDIAN C | -                            | -        | -        | URINE                   | NEGATIVE               | 2020-08-12 15:23:00                       |
| 1      |     | US-101                 | US-101-0003          | F          | 49         | 1971-07-16            | NOT HISPANIC OR L   | NATIVE HAWAIIAN O | -                            | -        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0006          | F          | 61         | 1963-03-20            | NOT HISPANIC OR L   | WHITE             | -                            | -        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0008          | F          | 35         | 1985-07-29            | NOT HISPANIC OR L   | OTHER             | -                            | -        | -        | -                       | -                      | -                                         |
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| 1      |     | US-101                 | US-101-0011          | F          | 45         | 1975-07-31            | HISPANIC OR LATINK  | ASIAN             | -                            | -        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0012          | F          | 51         | 1971-03-26            | HISPANIC OR LATINK  | BLACK OR AFRICAN  | -                            | -        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0014          | F          | 31         | 1989-08-14            | UNKNOWN             | AMERICAN INDIAN C | -                            | -        | -        | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0016          | F          | 57         | 1963-08-03            | UNKNOWN             | BLACK OR AFRICAN  | -                            | -        | -        | -                       | -                      | -                                         |

LB

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# Table Interactions

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Domain

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AE

31 32 10 0 38

DM

23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID<br>Subject ID | SEX<br>Sex           | AGE<br>Age           | BIRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity  | RACE<br>Race         | RACEOTH<br>If Other, Specify | CHILDPOT             | NREASOTH             | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDTC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|------------------------------|----------------------|----------------------|-------------------------|------------------------|-------------------------------------------|
|        |     | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/>         | <input type="text"/> | <input type="text"/> | <input type="text"/>    | <input type="text"/>   | <input type="text"/>                      |
|        |     | US-101                 | US-101-0001          | F                    | 41                   | 1983-11-15             | NOT HISPANIC OR L    |                      |                              | N                    |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0002          | M                    | 35                   | 1985-03-16             | NOT REPORTED         | AMERICAN INDIAN C    |                              |                      |                      | URINE                   | NEGATIVE               | 2020-08-12 15:23:00                       |
|        |     | US-101                 | US-101-0003          | F                    | 49                   | 1971-07-16             | NOT HISPANIC OR L    | NATIVE HAWAIIAN O    |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0004          | F                    | 31                   | 1989-02-06             | HISPANIC OR LATINC   | BLACK OR AFRICAN     |                              | N                    |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0005          | F                    | 31                   | 1990-02-09             | NOT REPORTED         | AMERICAN INDIAN C    |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0006          | F                    | 61                   | 1963-03-20             | NOT HISPANIC OR L    | WHITE                |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0007          | M                    | 47                   | 1973-10-23             | UNKNOWN              | BLACK OR AFRICAN     |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0008          | F                    | 35                   | 1985-07-29             | NOT HISPANIC OR L    | OTHER                |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0009          | F                    | 75                   | 1945-06-07             | NOT REPORTED         | NATIVE HAWAIIAN O    |                              |                      |                      |                         |                        |                                           |
|        |     | US-101                 | US-101-0010          | F                    | 44                   | 1979-08-13             | NOT REPORTED         | ASIAN                |                              | N                    |                      |                         |                        |                                           |

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# Real Time Queries **New**

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Domain Queries

AE 31 32 10 0 38

DM 23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID A<br>Subject ID | SEX<br>Sex | AGE<br>Age | BIRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity | RACE<br>Race      | RACEOTH<br>If Other, Specify | CHILDPOT  | NREASOTH  | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDTC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|------------------------|------------|------------|------------------------|---------------------|-------------------|------------------------------|-----------|-----------|-------------------------|------------------------|-------------------------------------------|
|        |     | Search...              | Search...              | Search...  | Search...  | Search...              | Search...           | Search...         | Search...                    | Search... | Search... | Search...               | Search...              | Search...                                 |
|        |     | US-101                 | US-101-0001            | F          | 41         | 1983-11-15             | NOT HISPANIC OR L   |                   |                              | N         |           |                         |                        |                                           |
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|        |     | US-101                 | US-101-0004            | F          | 31         | 1989-02-06             | HISPANIC OR LATIN   | BLACK OR AFRICAN  |                              | N         |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0005            | F          | 31         | 1990-02-09             |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0006            | F          | 61         | 1963-03-20             |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0007            | M          | 47         | 1973-10-23             |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0008            | F          | 35         | 1985-07-29             |                     |                   |                              |           |           |                         |                        |                                           |
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New Query

No queries on this record. Add one below.

Type your comment...

Open Query

Cancel



# Real Time Queries **Open**

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|--------|-----|------------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|------------------------------|----------------------|----------------------|-------------------------|------------------------|-------------------------------------------|
|        |     | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/>   | <input type="text"/> | <input type="text"/> | <input type="text"/>         | <input type="text"/> | <input type="text"/> | <input type="text"/>    | <input type="text"/>   | <input type="text"/>                      |
| 1      |     | US-101                 | US-101-0002          | M                    | 35                   | 1985-03-16             | NOT REPORTED         | AMERICAN INDIAN C    | -                            | -                    | -                    | URINE                   | NEGATIVE               | 2020-08-12 15:23:00                       |
| 1      |     | US-101                 | US-101-0003          | F                    | 49                   | 1971-07-16             | NOT HISPANIC OR L    | NATIVE HAWAIIAN O    | -                            | -                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0004          | F                    | 31                   | 1989-02-06             | HISPANIC OR LATINC   | BLACK OR AFRICAN     | -                            | N                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0005          | F                    | 31                   | 1990-02-09             | NOT REPORTED         | AMERICAN INDIAN C    | -                            | -                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0006          | F                    | 61                   | 1963-03-20             | NOT HISPANIC OR L    | WHITE                | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0007          | M                    | 47                   | 1973-10-23             | UNKNOWN              | BLACK OR AFRICAN     | -                            | -                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0008          | F                    | 35                   | 1985-07-29             | NOT HISPANIC OR L    | OTHER                | -                            | -                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0009          | F                    | 75                   | 1945-06-07             | NOT REPORTED         | NATIVE HAWAIIAN O    | -                            | -                    | -                    | -                       | -                      | -                                         |
|        |     | US-101                 | US-101-0010          | F                    | 44                   | 1979-08-13             | NOT REPORTED         | ASIAN                | -                            | N                    | -                    | -                       | -                      | -                                         |
| 1      |     | US-101                 | US-101-0011          | F                    | 45                   | 1975-07-31             | HISPANIC OR LATINC   | ASIAN                | -                            | -                    | -                    | -                       | -                      | -                                         |

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AE 31 32 10 0 38

DM 23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID<br>Subject ID | SEX<br>Sex | AGE<br>Age | BIRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity | RACE<br>Race      | RACEOTH<br>If Other, Specify | CHILDPOT  | NREASOTH  | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDBC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|----------------------|------------|------------|------------------------|---------------------|-------------------|------------------------------|-----------|-----------|-------------------------|------------------------|-------------------------------------------|
|        |     | Search...              | Search...            | Search...  | Search...  | Search...              | Search...           | Search...         | Search...                    | Search... | Search... | Search...               | Search...              | Search...                                 |
|        |     | US-101                 | US-101-0001          | F          | 41         | 1983-11-15             | NOT HISPANIC OR L   |                   |                              | N         |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0002          | M          | 35         | 1985-03-16             | NOT REPORTED        | AMERICAN INDIAN C |                              |           |           | URINE                   | NEGATIVE               | 2020-08-12 15:23:00                       |
|        |     | US-101                 | US-101-0003          | F          | 49         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0004          | F          | 31         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0005          | F          | 31         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0006          | F          | 61         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0007          | M          | 47         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0008          | F          | 35         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0009          | F          | 75         |                        |                     |                   |                              |           |           |                         |                        |                                           |
|        |     | US-101                 | US-101-0010          | F          | 44         |                        |                     |                   |                              |           |           |                         |                        |                                           |

LB 253 231 0 0 1

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### Query History

- Opened System** Aug 27, 2020 03:41 PM  
Verify Birthdate  
ID: 0P48888888882K28
- Opened System** Dec 16, 2022 03:00 PM  
Please verify birth date as it does not match other data sources.  
ID: 0P488888888835887
- Opened System** Jul 31, 2024 03:28 AM  
test  
ID: 0P4888888888888888

Type your comment...

Add Comment Close Query

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# Real Time Queries **Answered**

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Domain Queries

AE 31 32 10 0 38

DM 23 14 11 1 23

| STATUS | New | SITENUM<br>Site Number | SUBJID<br>Subject ID | SEX<br>Sex | AGE<br>Age | BRTHDAT<br>Birth Date | ETHNIC<br>Ethnicity | RACE<br>Race      | RACEOTH<br>If Other, Specify | CHILDPOT | NREASOTH | LBSPEC<br>Specimen Type | PREG_LBORRES<br>Result | LBDTC<br>Date/Time of Specimen Collection |
|--------|-----|------------------------|----------------------|------------|------------|-----------------------|---------------------|-------------------|------------------------------|----------|----------|-------------------------|------------------------|-------------------------------------------|
| !      | +   | US-101                 | US-101-0001          | F          | 41         | 1983-11-15            | NOT HISPANIC OR L   | -                 | -                            | N        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0002          | M          | 35         | 1985-03-16            | NOT REPORTED        | AMERICAN INDIAN C | -                            | -        | -        | URINE                   | NEGATIVE               | 2020-08-12 15:23:00                       |
| !      | +   | US-101                 | US-101-0003          | F          | 49         | 1971-07-16            | NOT HISPANIC OR L   | NATIVE HAWAIIAN O | -                            | -        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0004          | F          | 31         | 1989-02-06            | HISPANIC OR LATIN   | BLACK OR AFRICAN  | -                            | N        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0005          | F          | 31         |                       |                     |                   |                              | -        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0006          | F          | 61         |                       |                     |                   |                              | -        | -        | -                       | -                      | -                                         |
| ✓      | +   | US-101                 | US-101-0007          | M          | 47         |                       |                     |                   |                              | -        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0008          | F          | 35         |                       |                     |                   |                              | -        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0009          | F          | 75         |                       |                     |                   |                              | -        | -        | -                       | -                      | -                                         |
| !      | +   | US-101                 | US-101-0010          | F          | 44         |                       |                     |                   |                              | N        | -        | -                       | -                      | -                                         |

LB 253 231 0 0 1

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Query History

✓ Closed System Aug 26, 2020 05:22 PM  
Please check record.  
ID: OPW000000002922

! Answered System Dec 16, 2022 03:00 PM  
Please verify birth date as it does not match other data sources.  
ID: OPW0000000035884

Type your comment...

Add Comment Close Query Open Query Cancel

# Audit Logging

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| SUBJID                 | QUERYID                    | QUERYNAME            | FORMNAME             | ITEMNAME             | FIRSTQUERYMSC                                         | QUERYMSG_ans                    | QUERYMSG_clos         | QUERYSTATUS          | QUERYAGE             | QUERYCHGDATA         | QUERYCREATED         | QUERYCREATED         |
|------------------------|----------------------------|----------------------|----------------------|----------------------|-------------------------------------------------------|---------------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <div>Search...</div>   | <div>Search...</div>       | <div>Search...</div> | <div>Search...</div> | <div>Search...</div> | <div>Search...</div>                                  | <div>Search...</div>            | <div>Search...</div>  | <div>Search...</div> | <div>Search...</div> | <div>Search...</div> | <div>Search...</div> | <div>Search...</div> |
| <div>US-101-0001</div> | SESSION-2026-03...         | -                    | LB                   | LBSPCCND             | Test                                                  | -                               | -                     | open                 | -                    | -                    | You                  | 2026-03-20T14:34.    |
| <div>US-101-0001</div> | SESSION-2026-03...         | -                    | AE                   | AESER                | Test                                                  | -                               | -                     | open                 | -                    | -                    | You                  | 2026-03-20T14:33.    |
| <div>US-101-0007</div> | SESSION-2026-03...         | -                    | DM                   | BRTHDAT              | This looks wrong                                      | -                               | -                     | open                 | -                    | -                    | You                  | 2026-03-20T14:32.    |
| <div>US-101-0004</div> | SESSION-2026-03...         | -                    | DM                   | BRTHDAT              | Test                                                  | -                               | -                     | open                 | -                    | -                    | You                  | 2026-03-20T14:32.    |
| US-101-0001            | OPW000000002513 VV-002639  |                      | VS                   | HEIGHT               | Height does not m...                                  |                                 | This query has bee... | closed               | 376                  | true                 | System               | 2020-07-10 20:20:..  |
| US-101-0001            | OPW000000002514 VV-002640  |                      | VS                   | HEIGHT               | A value is required ...                               |                                 | This query has bee... | closed               | 376                  | true                 | System               | 2020-07-10 20:20:..  |
| US-101-0001            | OPW000000002J03 VV-003283  |                      | VS                   | TEMP                 | Please review, que...                                 |                                 | This query has bee... | closed               | 81                   | false                | System               | 2020-08-24 12:20:..  |
| US-101-0001            | OPW000000002K01 VV-003280  |                      | VS                   | TEMP                 | Please verify chan...                                 | Confirmed.                      | OK                    | closed               | 82                   | false                | System               | 2020-08-23 14:25:..  |
| US-101-0001            | OPW000000002L58 VV-003459  |                      | DM                   | CHILDPOT             | A value is required ...                               |                                 | This query has bee... | closed               | 0                    | true                 | System               | 2020-09-03 17:53:..  |
| US-101-0001            | OPW000000002L59 VV-003460  |                      | DM                   | BRTHDAT              | Please confirm DOB The DOB is correct. okay to close. |                                 | closed                | 47                   | false                | System               | 2020-09-03 19:33:..  |                      |
| US-101-0001            | OPW000000002L60 VV-003461  |                      | DM                   | LBSPEC               | A value is required ...                               |                                 | This query has bee... | closed               | 144                  | false                | System               | 2020-09-03 19:34:..  |
| US-101-0001            | OPW000000002L61 VV-003462  |                      | DM                   | PREG_LBORRES         | A value is required ...                               |                                 | This query has bee... | closed               | 144                  | false                | System               | 2020-09-03 19:34:..  |
| US-101-0001            | OPW000000002L62 VV-003463  |                      | DM                   | LBDTC                | A value is required ...                               |                                 | This query has bee... | closed               | 144                  | false                | System               | 2020-09-03 19:34:..  |
| US-101-0001            | OPW000000002X02 VV-003646  |                      | DM                   | AGE                  | Please confirm if v...                                | This is correct.                | Okay to close.        | closed               | 9                    | false                | System               | 2020-09-22 15:45:..  |
| US-101-0001            | OPW000000003219 VV-003713  |                      | VS                   | BMI                  | BMI does not meet...                                  |                                 | open                  | 1755                 | false                | System               | 2020-10-02 14:51:10  |                      |
| US-101-0001            | OPW000000003C... VV-003922 |                      | DM                   | BRTHDAT              | Please clarify DOB This is correct.                   |                                 | This query has bee... | closed               | 1                    | true                 | System               | 2020-11-02 19:59:55  |
| US-101-0001            | OPW000000054010 VV-004454  |                      | VS                   | HEIGHT               | Check value                                           |                                 | This query has bee... | closed               | 245                  | false                | System               | 2021-02-02 16:49:5   |
| US-101-0001            | OPW00000005D001 VV-004564  |                      | DM                   | BRTHDAT              | DOB is still discrep...                               | DOB matches EMR. Okay to close. | closed                | 0                    | false                | System               | 2021-02-16 21:03:4   |                      |
| US-101-0001            | OPW00000007A003 VV-005177  |                      | DM                   | BRTHDAT              | DOB doesn't matc...                                   | DOB is accurate pe...           | Okay to close.        | closed               | 0                    | false                | System               | 2021-05-06 14:46:..  |
| US-101-0001            | OPW000000095002 VV-005815  |                      | AE_Onc               | AEONGO               | A value is required ...                               |                                 | This query has bee... | closed               | 897                  | false                | System               | 2021-07-22 07:34:..  |



# Using Visualizations to Query

## DATA REVIEW TOOL

Home

Study Overview

Patient Profile

Patient **US-101-0001** profile

Study: Natevba\_Data Site: US-101 Sex: F Age: 41 Race: - Ethnicity: NOT HISPANIC OR LATINO Status: enrolled Consent Date: 1950-05-10

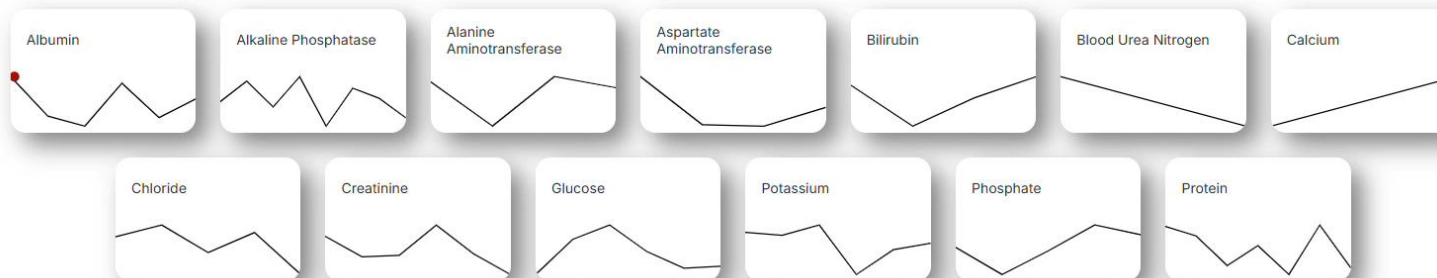
First Dose: 2020-05-18

★ 43 ★ 43 ✓ 12 🕒 0 ! 17

Labs

Adverse Events

Vitals



# Using Visualizations to Query

## DATA REVIEW TOOL

Home

Study Overview

Patient Profile

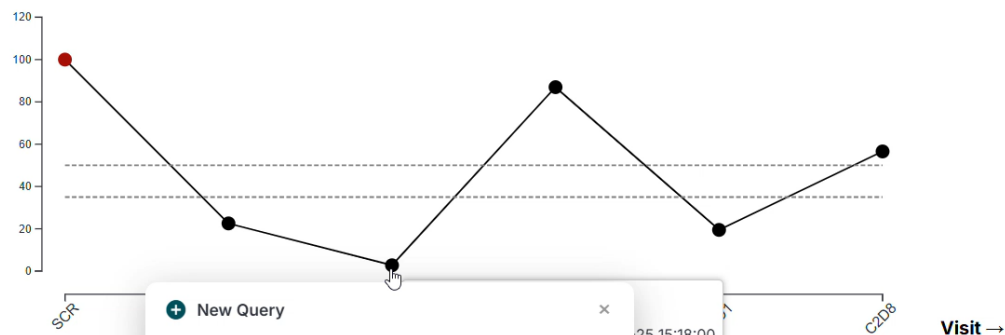
Patient **US-101-0001** profile

Study: Natevba\_Data Site: US-101 Sex: F Age: 41 Race: - Ethnicity: NOT HISPANIC OR LATINO Status: enrolled Consent Date: 1950-05-10  
First Dose: 2020-05-18

★ 43 ★ 43 ✓ 12 🕒 0 ! 17

Labs Adverse Events Vitals

Albumin (g/L)



+ New Query

No queries on this record. Add one below.

Type your comment...

Open Query

Cancel

Go to Record

Albumin

Alkaline Phosphatase

Aminotransferase

Aminotransferase

Bilirubin

Blood Urea Nitrogen

Calcium



# Using Visualizations to Query

## DATA REVIEW TOOL

Home

Study Overview

Patient Profile

Patient **US-101-0001** profile

Study: Natevba\_Data Site: US-101 Sex: F Age: 41 Race: - Ethnicity: NOT HISPANIC OR LATINO Status: enrolled Consent Date: 1950-05-10

First Dose: 2020-05-18

★ 43 ★ 43 ✓ 12 🕒 0 ! 17

Labs Adverse Events Vitals





# Scaling & Evolving Shiny for Clinical Data Management

## AI-Driven Anomaly Detection

Identify unexpected data patterns automatically using machine learning

## Metadata Integration

Define.xml, MDR, ODM for auto-configured validation rules

## Multi-User Scaling

ShinyProxy or Posit Connect for portfolio-level review across teams

## Enhanced Visualization

Real-time data quality dashboards with live metrics

Shiny is becoming a **core platform for clinical data integrity, speed, and transparency.**

# Thank you

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