Anonymized Data that enables patient recruitment

A clever solution enabling the use of patient data without compromising privacy for patient recruitment
Clinical Trials in UK

Trends in Clinical Research

- The UK is ranked third in Europe in terms of number of registered Clinical trials. YTD 14'906 *
  * Clinicaltrials.gov
Clinical Trials in UK

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- The NHS has a strong interest in performing more clinical studies
  - More innovation
  - Less imports
  - Additional know-how transfer
  - Potentially life-saving treatment
What are the best doing better?

Requirements for Top-Quality Clinical Research

- **Global Key Success Factors**
  - **Infrastructure**: Clinical Trial Centres / Units (CTU) that recruit and execute rapidly
  - **Staff**: dedicated and trained (GCP)
  - **Technology**: leading health databases plus technology to use them efficiently
  - **Government support**: rapid study approvals, funding, regulations, etc.
What are the «best» doing better?

Requirements for Top-Quality Clinical Research

- **Technology**: leading health databases plus technology to use them efficiently.

- **Government support**: rapid study approvals, funding, regulations, etc.
Trends in Healthcare IT

- The availability of Big Data in UK
  - EHRs can be consolidated on a national and regional level both from NHS trusts and GP's practices (supporting Integrated Health Records and Risk Stratification)

But what about patient « MAJOR CONCERN» the right to PRIVACY
NEW Anonymized Identification (ANID) Technology

How does it work?

1. Patient records are anonymized and then copied to a separate server inside hospital’s infrastructure.

   Original hospital patient database

   ▪ John Smith
   ▪ Ana López
   ▪ Marc Dumont
   ▪ Rosa Ling
   ▪ Sven Bock

   → ANONYMIZED

   Anonymized patient database

   ▪ ?
   ▪ ?
   ▪ ?
   ▪ ?
   ▪ ?

2. Query is created in Clinerion cloud based on protocol parameters

   Protocol 1
NEW Anonymized Identification (ANID) Technology

How does it work?

3. Query is run on anonymized patient data to evaluate number and location of eligible candidates.

Original hospital patient database

- John Smith
- Marc Dumont
- Ana López
- Rosa Ling
- Sven Bock

Anonymized patient database

4. Query returns a COUNT of patients matching the protocol criteria at each site which has allowed its database to be queried.

Two matches
How does it work?

5. Query is sent back to the individual hospital. Authorized hospital staff at the hospital run the query on their own database.

Original hospital patient database

- John Smith
- Marc Dumont
- Ana Lopez
- Rosa Ling
- Sven Bock
- Protocol 1

Two matching patients are IDENTIFIED.

6. Query returns Patient ID at that hospital matching the protocol criteria.
Primary Care Data

Apollo Medical

- Data De-Identified at source
- NHS Digital accredited ‘IM1’ bulk data interface for all four principal clinical systems:
  - EMIS
  - TPP
  - Vision
  - Microtest
- Coverage across >50% of GP practice estate and growing
- Innovative distributed edge architecture
- Strong security and consent model (GDPR compliant)
- SNOMED and DM+D ready
Apollo

Apollo Data Extract Solution

N3 Network

Clinical Supplier Domain

- EMS Web
- INPS
- miscellaneous
- TPP

Practice Domain

- GP 1
- GP 2
- GP 3
- GP 4
- GP 5
- GP 6
- GP 8,000

Data Processing Service

Data is received at the practice and processed via the Apollo regulator service to create a GP Practice database. Once the oracle database is established it can be interrogated by the SQL Suite reporting tool and outputs produced that are pseudonymised, anonymised, aggregated or patient identifiable dependant on agreed IG model. Daily Delta Updates ensure that the data remains current.

Onsite Practice Database

- SQL Suite Reporting Tool
- Secure encrypted file transfer

SQL Suite can also output files that can be loaded into a Local BI Tool/Dashboard.

Customer Endpoint

The data customer can choose to receive an overview of report run for all practices via e-mail or secure dashboard. Pseudonymised, anonymised, aggregated or patient identifiable encrypted output files from all successful report runs are delivered to a designated endpoint or loaded into a Centralised BI Tool.

- Secure encrypted file transfer
- Dependent on IG Model: Pseudonymised / Anonymised
- Aggregated or Patient Identifiable Data
- Fully automated
- Scheduled to run out of hours
- Reduced GP Burden
- Scalable
- IGs Controlled by Practice
- Clearly defined purpose
- Relatively low cost

Primary Care Data
PRS improves two key activities in the clinical trial process:

1. Feasibility and Sites Selection

Without PRS from Apollo/Clinerion

Trial Sites with uncertain number of suitable patients

With PRS from Apollo/Clinerion

Data driven feasibility check & selection of optimal sites

One match
PRS improves two key activities in the clinical trial process:

2. Real-Time Patient Recruitment

Without PRS from Apollo/Clinerion

So far: manually processed patient recruitment

With PRS from Apollo/Clinerion

Automated, real-time patient identification

Two patients found
Apollo/Clinerion Patient Recruitment System

Solution:
- Near real-time and 24x7 operation
- Matches study criteria with patient EHRs
- Immediate notification of study team

Results:
- 10-30x more patients found
- Within minutes instead of weeks or months

Technology:
- Operated within Trusts/GPs intranet only with anonymized aggregated data
- Fully Data Privacy and Security compliant
- Intelligent terminology & ontology management, applicable for all HIS systems