

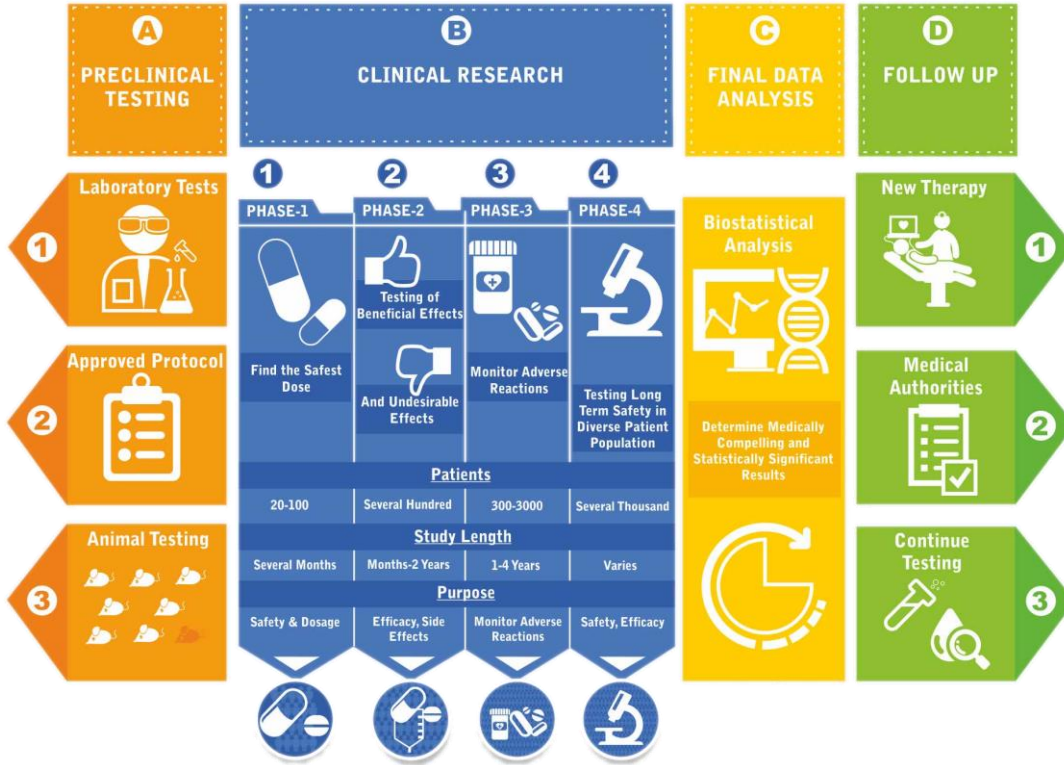
All you wanted to know about ~~Sex~~ Blood Pressure but were afraid to ask?

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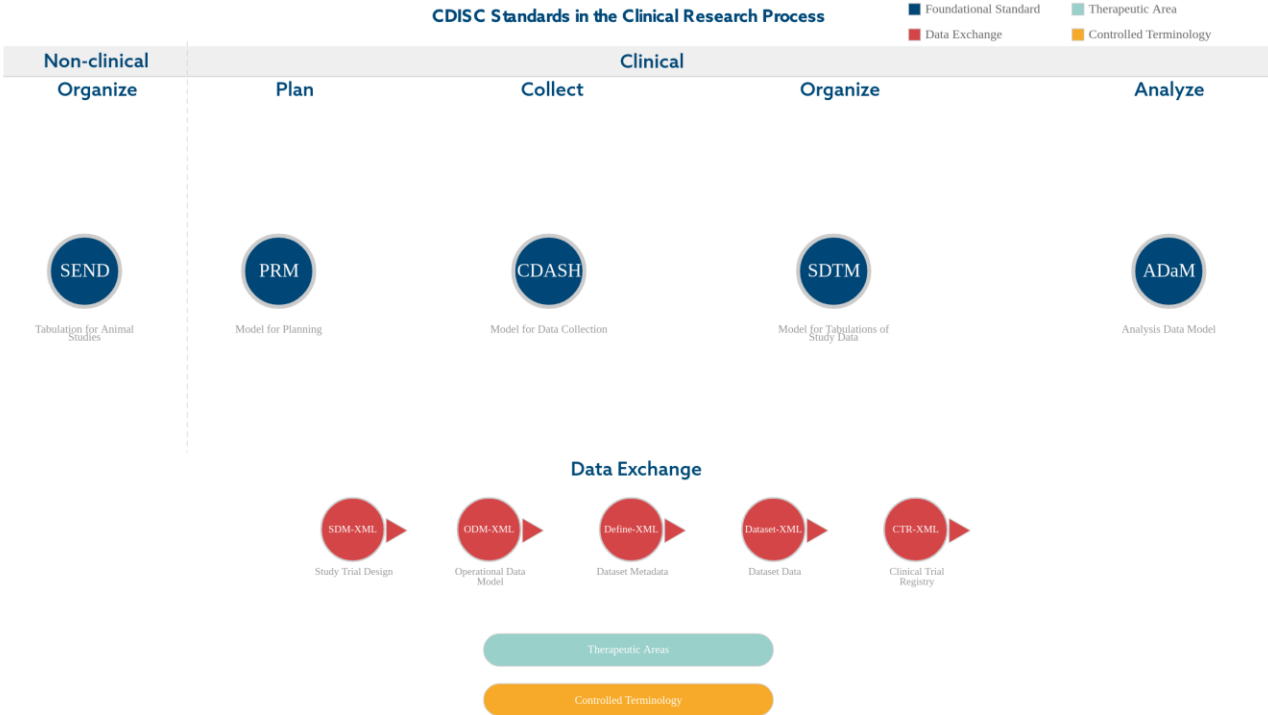
Clinical research...?!



- We deal mainly on the Clinical Research part

Clinical research but with Standardisation

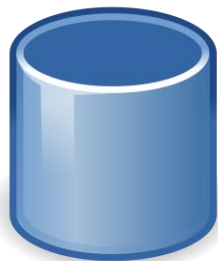
Multiple data model are driving our daily work



And the solution is...?



- Excel...?!!
- Not any more



- Database?...
- Yes but which one

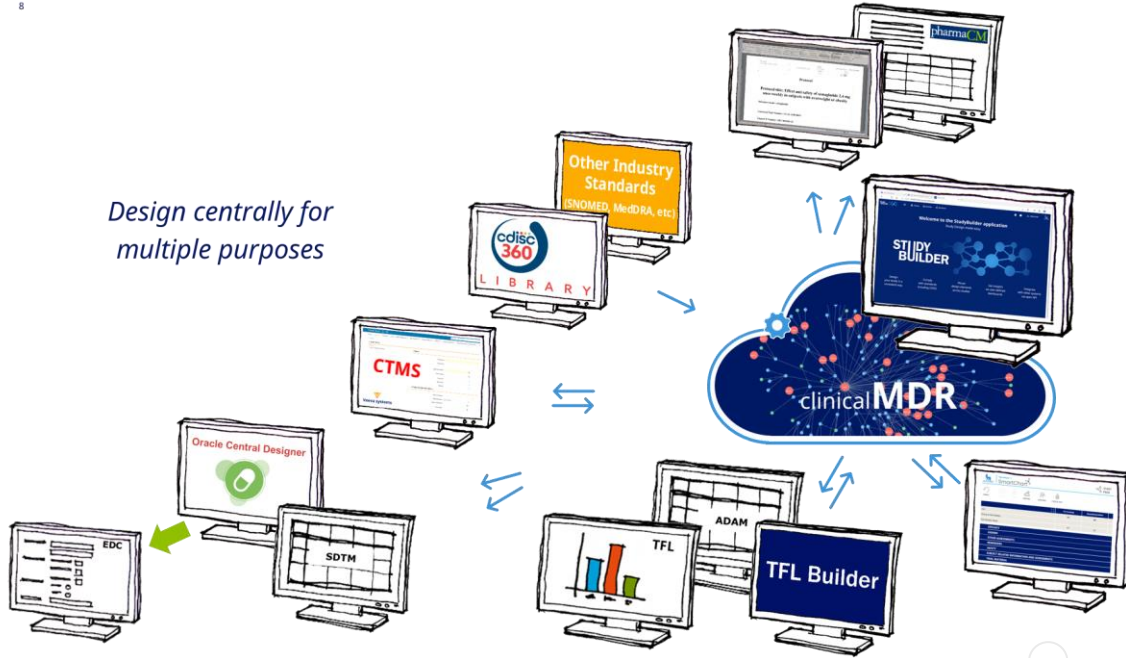


Big idea: Get a central Library to manage them all...

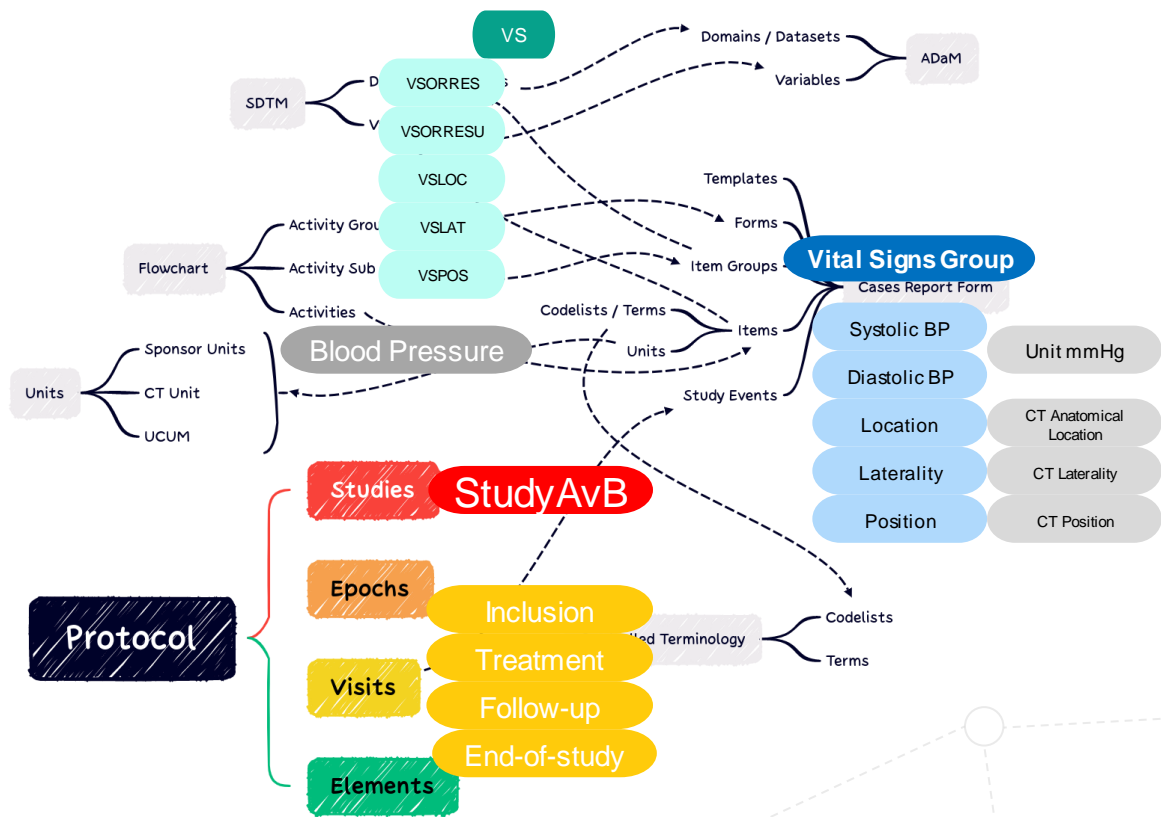


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Design centrally for multiple purposes



And where is the Sex the Blood Pressure in all this?



Analytic capabilities with Graph Algorithms



Pathfinding & Search

Finds optimal paths or evaluates route availability and quality



Centrality & Importance

Determines the importance of distinct nodes in the network



Community Detection

Detects group clustering or partition



Heuristic Link Prediction

Estimates the likelihood of nodes forming a future relationship



Similarity

Evaluates how alike nodes are by neighbours and relationships



Node Embeddings & ML

Compute low-dimensional vector representations of nodes in a graph, and allow you to train supervised machine learning models

Analytic capabilities with Graph Algorithms



Pathfinding & Search

- Shortest Path
- Single-Source Shortest Path
- All Pairs Shortest Path
- A* Shortest Path
- Yen's K Shortest Path
- Minimum Weight Spanning Tree
- K-Spanning Tree (MST)
- Random Walk
- Breadth & Depth First Search



Centrality & Importance

- Degree Centrality
- Closeness Centrality
- Harmonic Centrality
- Betweenness Centrality & Approx.
- PageRank
- Personalized PageRank
- ArticleRank
- Eigenvector Centrality
- Hyperlink Induced Topic Search (HITS)
- Influence Maximization (Greedy, CELF)



Community Detection

- Triangle Count
- Local Clustering Coefficient
- Connected Components (Union Find)
- Strongly Connected Components
- Label Propagation
- Louvain Modularity
- K-1 Coloring
- Modularity Optimization
- Speaker Listener Label Propagation



Supervised Machine Learning

- Node Classification
- Link Prediction



... and more!



Heuristic Link Prediction

- Adamic Adar
- Common Neighbors
- Preferential Attachment
- Resource Allocations
- Same Community
- Total Neighbors



Similarity

- Node Similarity
- K-Nearest Neighbors (KNN)
- Jaccard Similarity
- Cosine Similarity
- Pearson Similarity
- Euclidean Distance
- Approximate Nearest Neighbors (ANN)



Graph Embeddings

- Node2Vec
- FastRP
- FastRPEExtended
- GraphSAGE

- Synthetic Graph Generation
- Scale Properties
- Collapse Paths
- One Hot Encoding
- Split Relationships
- Graph Export
- Pregel API (write your own algos)

DEMO TIME

Thank you!

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