

## CLINICAL REGISTRIES, RESEARCH DATABASES: ICT

## MULTICENTRIC DATA COLLECTION (TRIALDB2) & CLINICAL DATA WAREHOUSING (CLADE-IS)

- robust eCRF design
- comprehensive management of user privileges
- easy and ergonomic operation
- proven on thousands of users from the health care sector
- more than 100 live projects covering all medical disciplines

## **OVERVIEW**

# ICT INFRASTRUCTURE FOR CLINICAL DATA COLLECTION AND HARMONIZATION IN THE CENTRALIZED DATA WAREHOUSE (CLADE-IS)

• Robust eCRF design: Open schema database

• Generalized DAM: Adaptive definition of user roles and privileges

Modular approach:

ADMINER

**DESIGNER** 

STUDIES

REPORTER









• Easy & ergonomic operation: Responsive web-design

• de-Centralization (optional): Hospital-proxy for personal identity

data filtration

## CORE FUNCTIONALITY



### **ADMINER**

## **Data Access Management (DAM)**

- configurable privileges
- configurable user roles including custom definitions
  SiteCoordinator-Investigator-Monitor-DataManager-MedicalCoder-Admin-...
- configurable form statuses including custom definitions
  Pending-Complete-Valid-Verified-Signed-Locked-...
- unlimited hierarchy of regions, institutions, sites, clinics ...



### **DESIGNER**

## electronic Case Report Form design (eCRF)

- patient forms & site forms
  - On-line designer
- skip logic

ReadOnly-Disabled-Skipped fields

data validation

Instant Form Validation Rules: mandatory fields – syntax controller – intervals Complex Validation Rules: data integrity checking

calculations

Computed Values - Events

interactive user & clinical guide

ToolTips - LinkedDocs

high customization

Languages

Layouts - Styles - Logotypes



#### **STUDIES**

## Web-responsive user interface (UI)

dashboard

Recently Edited Records - HelpDesk Messaging - Queries to solve

• search engine

Configurable Parameters & Logic

2-level Results: (i) patients, (ii) forms

monitoring & audit trail

System & Manual Queries

Question-based & Form-based & Phase-based Queries





### REPORTER

## **Operational reporting**

- pre-defined reports
   Enrollment DataCompletion
- custom report & export definitions
- rich formatting capabilities

XLSx-PDF-HTML5

queue processing

LoadBalancing - E-mailing

## OPTIONAL MODULES









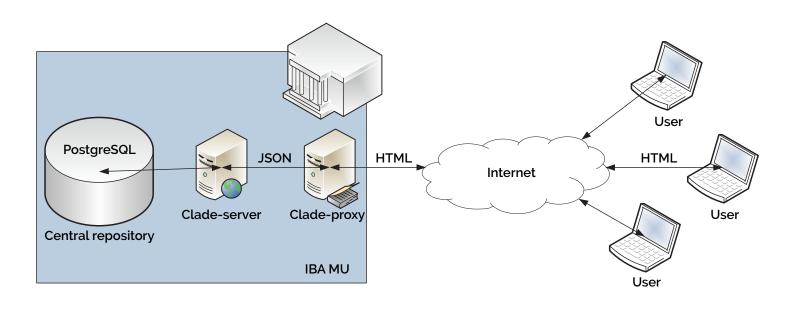
## **Enhanced functionality**

- application interface (API)
   Integration with external systems Interoperability
- external data sources support
   Use of Data From Patients' Devices Use of Data From Percentile/Risk Tables
- pharmacovigilance
   Custom Rules and Events Emailing PDF reports
- randomization
- Custom Definitions of Stratification Factors
- images
   Image-based Questions & Answers in eCRF
- data & visual analytics
   Integration with R package: advanced calculations
   Customized Interactive Data Browsers & DataDriven Documents

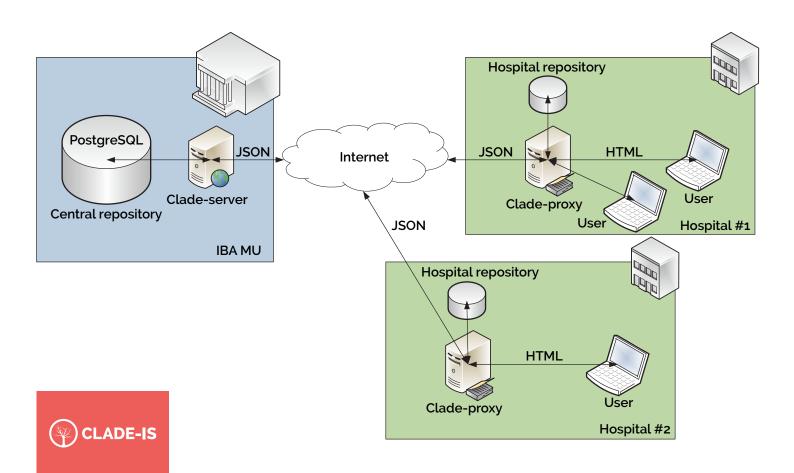
Compliance/Adherence Graphical Outputs: integrated in eCRF



# STRUCTURE OF THE SYSTEM (CENTRALIZED)



# STRUCTURE OF THE SYSTEM (DISTRIBUTED)



## **TECHNOLOGY MIX**





## **APPLICATION LAYER**

PHP, framework Symfony



## **DATABASE ABSTRACTION LAYER**

ORM/DBAL Doctrine





#### COMMUNICATION

REST API, JSON, https







#### **USER INTERFACE**

ZURB Foundation, ¡Query, Knockout

**DE-CENTRALIZATION & DEPLOYMENT** 



### **DATABASE**

PostgreSQL



## os

Ubuntu LTS



#### Danta E10

Oracle Virtual Box





## **DATA & VISUAL ANALYTICS**

R, D3.js

THE MOST RECENT STABLE VERSIONS OF ALL INCLUDED PACKAGES ARE USED. NO ADDITIONAL PROPRIETARY SOFTWARE LICENSES ARE NEEDED.

## DATA SECURITY AND PROTECTION

## **Physical security**



## **Authorized access**



## Data backup procedures



## **Implementation**

- training
- data security & protection
- remote administration & management support





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