

# **Analyses and Management of Healthcare Data for Cancer Care**

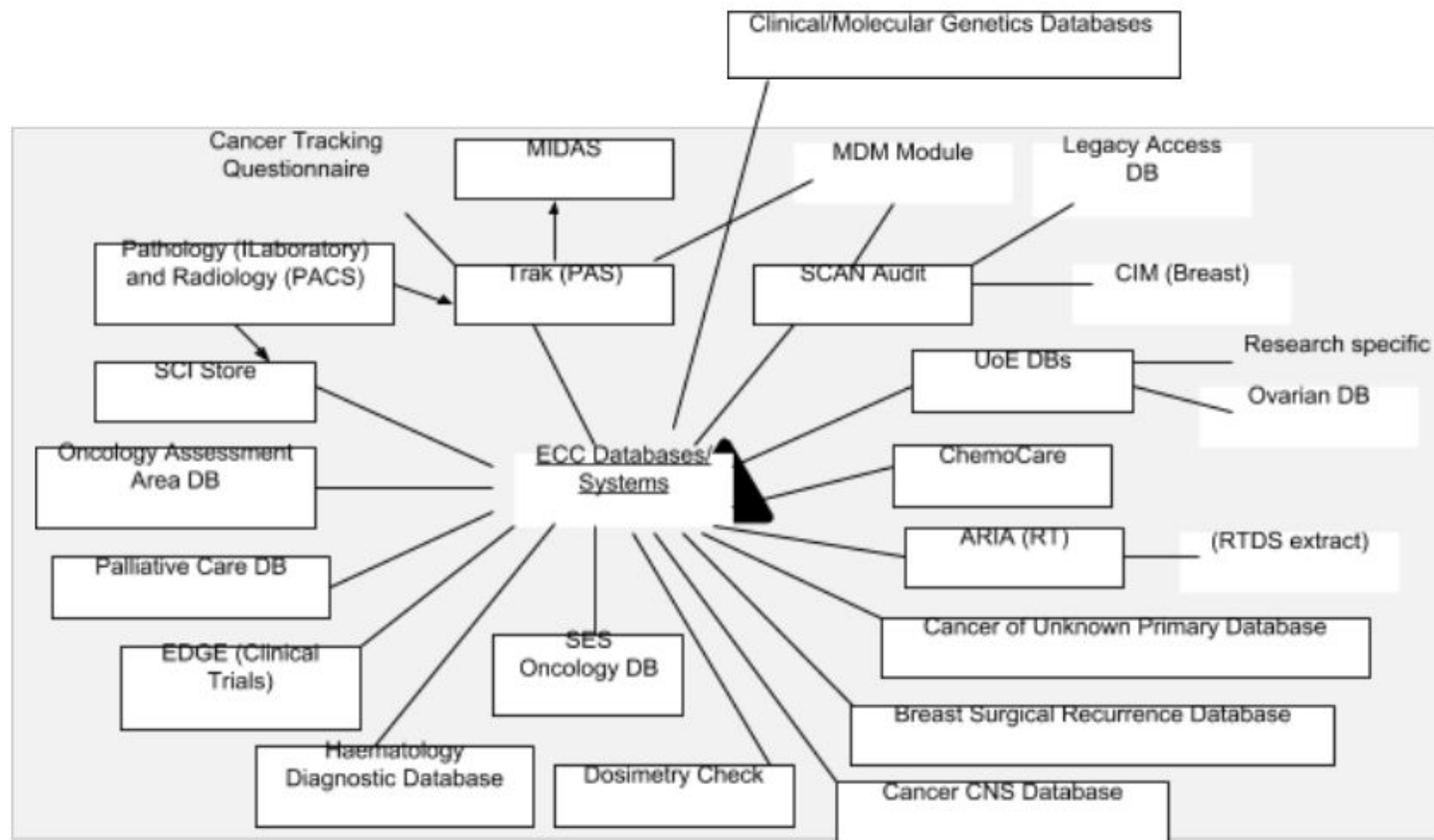
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# EngD: Analyses Healthcare data

- *KEY OBJECTIVE:*

*To develop analytical solutions to improve the quality and capability of real-time outcomes reporting within South East Scotland using routinely captured electronic healthcare data.*

- **Through a series of research projects**



# Patient Data Visualisation

- Design ***a method to accurately visualize patient pathway*** data from the South East Scotland Oncology Database
  - ***View pathway progress at an individual level*** (for example in clinic) but also on a cohort basis to analyse against a set of metrics, e.g. time between treatment, following a specific pathway, outcome against disease management protocols.
- ***Assess transferability by applying the same method to a dataset that includes ChemoCare*** data to evaluate the effect of the use of drugs, time on treatment and relative dose intensity on the time between lines of therapy (duration of disease control).

- Home
- Patient Timeline
- Help

## Patient Timeline

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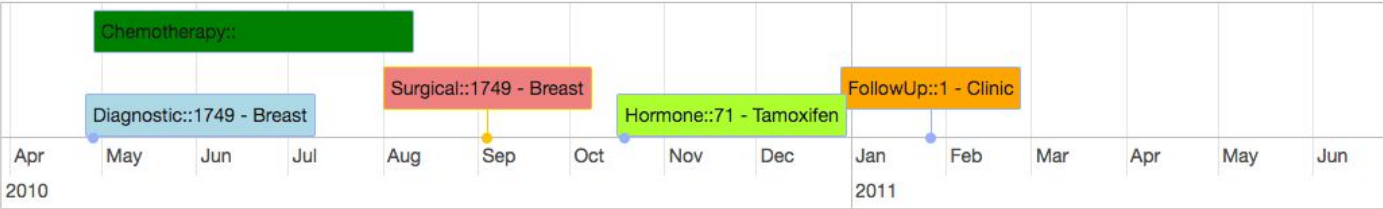
**Odin Dark (Male)**

**chi number:** 9999FAKE8888

92 Dalkeith Road, EH165AF Edinburgh

Date first seen	03/07/2015 (24)	Referring Hospital:	Royal Infirmary
WGH Number	55565556565	Referring consultant:	Jack Doe
Date Of birth	04/11/1990 (26 yrs)	Onc. consultant:	Corrin Doe
In-Patient		2nd Onc. Consultants:	Luna Doe

## Event Timeline



## Surgery 1 - Complete

Episode	1	Site	1749 - Breast
Primary	1	TNM	T: N: 2 M:0

# Oncology Migration

- Migrated the DB from **Microsoft Access DCO-DB** to **SQL Server**
- Successfully migrated ~2 millions patients data

# Current Project: Toxicity predictor

- Use Machine/Deep learning technique to predict the result of Chemotherapy treatment.
- Techniques observed:
  - ANN
  - RNN
  - HMM
  - Random Forest
  - Naive Bayes
  - etc.

# Future Project:

- Design a Reporting tool for the new Oncology DB with Tableau



# DIFFICULTIES

- Analyses Difficulties:
  - Understanding the key problem
  - Finding relevant information
  - Medical terminologies
- Technical Difficulties:
  - Gaining access to data (from backend)
  - Installing the right tool for development
  - Choosing Development Machine
  - ***Testing***

**THANK YOU**