Why Use IT for clinical application?

Bedside signs and symptoms that are common aspects of any health record, including unstructured data, are necessary in addition to codes and data fields to represent the true clinical condition.

Aggregation, assembly and interpretation of such data in real time at the clinical site would be ideal.

Building the Solution

How?   Formatting collection and retrieval uniformly

What?   Type of data: a fully evolved EHR

Where?   Site of the Collection: Any clinical site

When?   Real-time (prospective>retrospective)

Who?   Physician, physician extender, paramedical staff, administrator/clerk

Why?   Stated objectives supported by advanced metrics
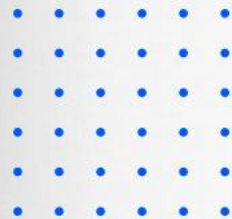
The ideal EHR

Contains all the elements of a traditional medical record, in a traditional medical format.

All data fields, representing both structured and unstructured data, are extractable and accountable.

Personal Health Information is easily sanitized for data analytics.

The ideal EHR analytics tool

(How We Do It)

Mining from a specific EHR data base, using a generic template (design, matrix)
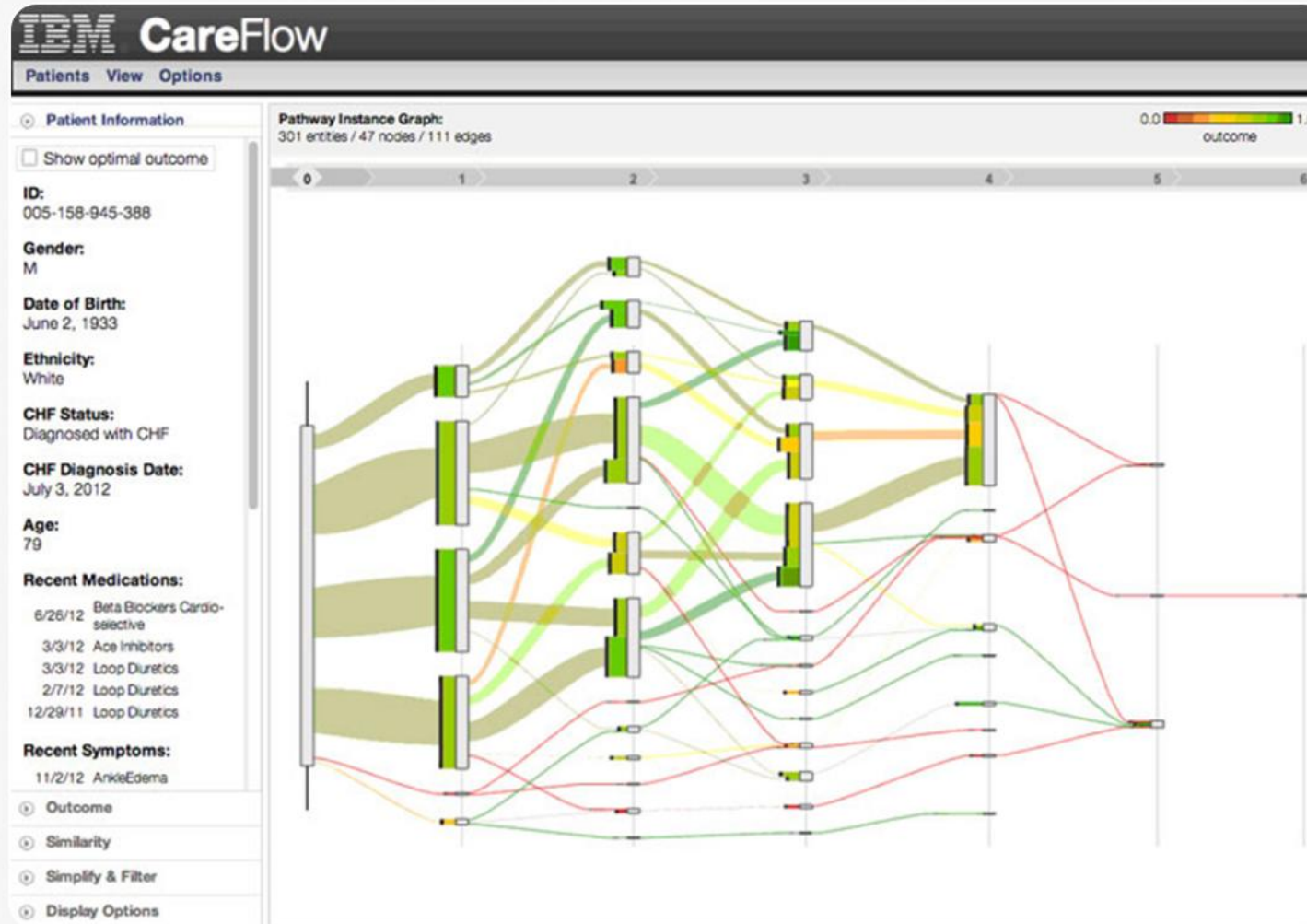

Identical method of aggregation, assembly and Bayesian analysis

Same access/usability at multiple sites

Different topics, different objectives

Includes patient features that may not ultimately be relevant determinants for outcomes

Similarity Analytics

What qualifies as a feature?

How do the weights change across judgment contexts?

What determines the feature weights?

Behavioral and Brain Sciences

Bayesian Based Analytics

Allow for detection of nuances in a disease pattern/presentation.

HOW?

Each piece of data is a weighted variable that impacts on each outcome.

Bayesian Models

Designed to deal with uncertainty.

Transparency, so the model is easily interpreted.

Intuitive usage, which is attractive in complex modeling problems such as systematic review.

AHIMA

Bayesian Models

Probabilistic inference capability facilitates predictions about unobserved data that could allow for filling of data gaps.

Bayesian Networks and machine learning technology support complex optimizations.

AHIMA

"To answer not only the questions we cannot answer today, but to answer the questions we cannot envision today"

AHRQ conference

- Use of the tool within standard clinical processes does not require additional personnel

- One template multiple applications

- Multiple management decisions