HFMA/ONE NHS FINANCE

London Academy, Annual Conference 2023

Impact of Genomics on Future Investments and Developments in the NHS

Thursday, 12th October 2023

BIG SCIENCE HAS ARRIVED

Genetic Profiling and Therapeutic Targeting

Proton Beam Therapy and Novel Treatments

High-speed informatics and cooling technology

Stem-cell based research and new science

Prosthetics, regeneration & bio-engineering developments

DELIVERING THE MAJOR CONDITIONS STRATEGY

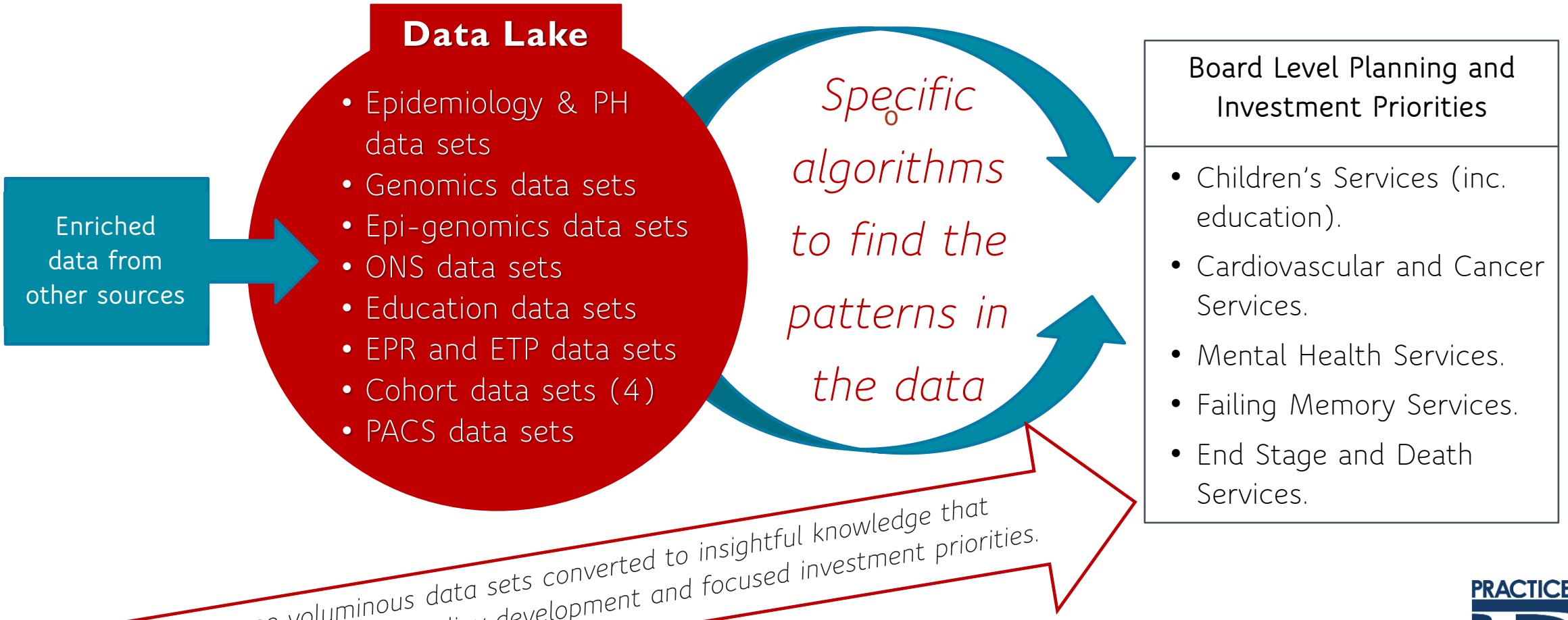
- Genomic-based Diagnostics.
- Genomic-based Personalised Medicine.
- Predictive Analytics-driven Pharmacogenomics.
- Epigenomics + Data Infrastructure.
- Biosimulars, Immunotherapy, + Stem Cell Transplants.

GOING DIGITAL AND EMBEDDING BIG DATA AND BIG SCIENCE

An Integrated Data Strategy

- Develop Digital Lakes (Amazon – 50 Exabytes).
- Bring data from multiple databases to computers.
- Develop search engines and Analytical Platforms.
- Enrich the data from multiple sources.
- Create a Data Service incorporating machine learning.

REDUCING INEQUALITIES AND IMPROVING LIFE CHANCES



PRACTICES MADE PERFECT

BIG DATA ANALYTICS

Predictive Analytics Service

- Artificial intelligence and data sources.
- Machine learning and pattern recognition.
- Deep learning and multiple-medical diagnostics.
- Trends, correlations and multiple regression analyses.
- Outcomes data and predictive analytics.

DIGITAL PATHOLOGY AND IMAGING DIAGNOSTICS AND PREDICTIVE ANALYTICS SERVICE

- Investments in digital tools and imaging equipment to improve diagnostics and imaging.
- Investments in AI Centres of Excellence – 5 so far.
- Investments in digitization of cellular pathology and network of pathology lakes.
- Investments in screening and imaging centres and network of screening and imaging lakes e.g. cardiovascular, respiratory and surgical.
- Investments in tumour biology and visualization technologies and network of cancer lakes.

GOAL

Support Early Diagnostics and Predictive Analytics, and Precision Medicine Developments.

Looking at the Horizon and Development Healthcare

Implications for Workforce

- Pharmacogenomicists supporting general physicians.
- Stem cell and laser technologists supporting surgeons.
- Molecular cytology/pathology supporting diagnosticians.
- Clinical engineers and computer technologists supporting intensivists.
- Clinical informaticians and bioinformaticians supporting genomicists and predictive analytic programmes.

LEADERSHIP ISSUES

- Are the current system and trust leaders on the case?
- Have they got sufficient knowledge and skills to make big investment decisions?
- Are local top clinicians on board and suitably qualified?
- Is the underlying deficit all-consuming?
- Where are the finance specialists?