

LEVERAGING CLINICAL ANALYTICS TO DESIGN PERSONALISED MEDICINE

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- How clinical analytics can be used to design a personalised treatment regimen - medical records, population clinical data, best evidence and outcomes
 - Delivering the best possible care at the most affordable cost and rising awareness amongst the patients
 - Designing a treatment regime just for one person that will ensure the best treatment both in terms of degree and speed of recovery
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AGENDA

- About me and my professional associations
 - Aims & Objectives
 - Personalized medicine
 - Clinical analytics
 - Methodology
 - Workflow – Clinical practitioner
 - Workflow – Information systems
 - Q & A
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PERSONALIZED MEDICINE

- Personalized medicine is about making the treatment as individualized as the disease.
 - Personalized medicine takes an integrated, coordinated, evidence-based approach to individualizing patient care across the continuum from health to disease.
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PERSONALIZED MEDICINE

- Involves identifying **genetic**, **genomic**, and **clinical information** that allows accurate predictions to be made about a person's susceptibility of developing disease, the course of disease, and its response to treatment.
 - In order for personalized medicine to be used effectively by healthcare providers and their patients, these findings must be translated into **precise diagnostic tests** and **targeted therapies**.
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CLINICAL ANALYTICS

- The use of laboratory data, including blood tests, urinalysis, and microscopic tissue studies, in determining a diagnosis and treatment regimen
 - Aims to provide clinical care providers with sufficient information so that they may
 - Devise and monitor better personalized treatment plans
 - Devise, monitor and refine better treatment protocols
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METHODOLOGY

- Follow the five (5) steps of clinical analytics
 1. Questionnaire design
 2. Questionnaire development
 3. Data capture
 4. Run analytics
 5. Reports presentation
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DATA SOURCES

- Data to be culled from
 - Electronic Medical Records (EMR)
 - Departmental Systems (Clinical, Specialty, Nursing, OR, LIS, RIS, Pharmacy, etc.)
 - Resource Acuity
 - Accounts: Receivable & Payable
 - Billing Services
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ANALYTICS: EBM NUMBERS FOR...

- Investigations
 - Sensitivity,
 - Specificity,
 - Likelihood Ratio
 - Treatment
 - Absolute Risk Reduction (ARR),
 - Relative Risk Reduction (RRR),
 - Odds Ratio,
 - Numbers Needed to Treat (NNT)
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REPORTS PRESENTATION

- Treatment Plan
- Care Protocol/Pathway
 - Facts & Figures
 - Alphanumeric
 - Graphical

WORKFLOW – CLINICAL CARE PROVIDER

- Clinically evaluate the patient
 - Enter data into system
 - Receive information back from the system
 - Prepare a case management plan based on the desired outcome
 - Execute the plan
 - Periodically re-evaluate patient
 - Enter data into system
 - Receive fresh information back from the system
 - Fine tune the case management plan
 - Continue process till patient has a satisfactory outcome
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WORKFLOW – INFORMATION SYSTEM

- Receive data into the system
 - Receive plan request
 - Perform a search for similar case based on clinical observations including diagnosis and patient demographics
 - Find the best-fit match → if found, present it
 - Else, run analytics on individual data points
 - Find that which points to the most likely outcome desired
 - Prepare a case management plan
 - Present the plan as appropriate
 - Repeat the process on-demand
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ROAD AHEAD

- Unless there is wide-spread use of EMR this is most likely to remain a pipe-dream
 - EMR must capture structured data (as opposed to unstructured, i.e. free text, data)
 - EMR must be able to exchange data with other EMR – requires conformation to health information exchange standards
 - EHR must be a reality, preferably from conception or birth (former preferred)
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