Predictive Intelligence Hubs

John Garcia
Background: Rare Diseases - Unique Clinical, Regulatory And Commercial Challenges

- No clear understanding of the disease
- No precedent for clinical study design & endpoints
- Regulatory path may be uncertain
- Few, hard-to-find patients, oddly distributed at times
- Intense need for education of patients & stakeholders
- Extremely high medical need – pressure for early access
- Commercial justification challenging in absence of data
Rare Diseases Are Different

Traditional Pharma Model

- Prescriber (n=000s)
- Payor
- Patient

Prescriber = gatekeeper

Rare Disease Model

- Rx (n=00s)
- Payer
- Family Members
- Spec Pharm
- Other Patients
- Patient services
- Advocacy Orgs

The Rare Disease Patient Is The Focus Of Many Stakeholders- Understanding Them Is Vital
There Is No Such Thing As A ‘Rare Diseaseologist’; The Journey To Diagnosis Can Be Long (And Is Often Frustrating)

Example: MPS II - Key Symptoms and Specialties Pre-Dx

Key Insights

- Some symptoms necessitate visits to specific specialties (e.g., valvular defects, skin lesions, etc.), other symptoms can be evaluated by multiple specialties.
  - Importance of these specialties will vary, depending on the history of disease and symptom presentation for each patient.
- Number of specialties may differ between patients.
  - As a patient continues undiagnosed, the number of presenting symptoms can increase, necessitating the need for patient visits to additional specialties.
Path to Diagnosis – Ultra-Orphan Disease “X”
Three Main Approaches To Improve Patient Finding

- Understand the patient pathways and determine:
  - Specialist and healthcare centers that are most likely to see the patients for and before diagnosis
  - Potential common misdiagnosis or treatments that might be used for the condition

- Using focus right medical education and awareness campaigns in the centers of excellence where this patients are most likely to be initially referred is a must

- Provide tools and tests that facilitate diagnosis of patients

- Adopt a proactive patient search approach rather than to wait for patients or specialist to find their way
- Perform predictive data analytics to find physicians treating patients not yet correctly diagnosed
Historical Go-To-Market Activities Driven By Qualitative Approaches: Inefficient approach in rare

Field personnel often inefficiently allocated and spent substantial resources bringing patient level insights back to functional teams, but still unintegrated.

Decision making ruled by assumptions and leadership intuition often resulting in variable outcomes.

Even if good patient level data existed affiliations, accuracy, and management of large data sets onerous and expensive.

Challenging to get patient level data accurately affiliated to potential customers in a consumable & manageable way.

Field Activity
Intuition & Assumptions
Poorly Integrated Data Sets
Little to no data availability
Solution
Integrated Customer-Patient Data Driving Market Development

01. Linked Patient HCP Big Data covering most US Patient Lives (250M+)
02. Granular Patient-HCP Data Directing Field and Non-personal activity
03. Managed Data Integration leveraging AI and Predictive Data Intelligence Hubs
04. Closed Loop Ecosystem with personal and non-personal input to data hub
Newer Data Sources
PT-HCP data availability driving market development

Linked HCP-Patient Claims Data
Managed, curated, & integrated
Daily updates = efficient effort

Real-time Market Access understanding influencing pricing and reimbursement efforts

AI techniques quickly identifying potential disease & accelerating diagnosis

Integrated lab results directing personal and non-personal promotion

Linked EHR-Claims data supporting deeper insights of patient experience and HCP disease understanding
AI and Fuzzy Matching

EXTRACT

ANALYZE

CONNECT
Patient Driven Targeting
Case study
Predictive Targeting – Real time patient data driven targeting for a launch brand

- Data Cloud
- Third-Party Data
- Client Data (CRM)

Predictive Intelligence Hub
- Scoring
- Profiling
- Reporting

Closed loop

1. HCP model across 20+ data sources both patient and HCP
   - Create pipelines to ingest, process & analyze data
   - Fully integrate internal/external data sources with data cloud

2. Develop engagement plans across driven by integrated PT-HCP data
   - Identified engagement needs
   - Generated potential actions in line with appropriate non-promotional engagement

3. Tracked engagement across teams by integrating with client systems (e.g., CRM, CTMS)
   - Monitored prediction success to improve recommendations
   - Supported cross-functional plans

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1 Photo reference: https://www.veeva.com/products/multichannel-crm/crm-suggestions/
Potential Payoff

- Resource allocation
- Lead generation
- Speed to diagnosis
- Accelerated Learning
- Data Generation
- Products and Services