Life Sciences: Clinical and Marketing Analytics

Anvita Karara

Carnegie Mellon University, Pittsburgh, PA. USA

Abstract: The rapidly increasing field of analytics has started to play a fundamental role in the progression of pharmaceutical business practices. It has provided tools to accumulate, manage, analyze, and assimilate large volumes of disparate, structured, and unstructured data produced by current healthcare systems. Big data analytics is not branching into aiding the process of healthcare delivery and disease exploration.

1. Introduction

Data analytics in healthcare is a mixture of clinical innovation and technology altogether. As the healthcare industry is continuously generating large amounts of data in different forms, it is almost impossible to manage the volume of data physically [3]. The current trend favors digitization of these large amount of data. Driven by mandatory requirements, the current generation favors "Data Analytics"[4]. This promising technique supports a wide range of pharmaceutical functions to improve services and tackle problems in healthcare sector. Analytics platform is capable of processing terabytes and petabytes of data, as a result of which, data analysis becomes easier [2].

Big data analytics has offered a new way to healthcare organizations to develop actionable insights, organize their future vision, boost up the outcomes and reduce time to value [5]. This approach is also helpful to provide insightful information to the healthcare enterprises regarding their management, planning and the measurements. The evaluated results can further help enhance the decision making capacity of the top management [6].

2. Big Data: A new competitive advantage

The use of Big Data is becoming a crucial way for leading pharmaceutical companies to outperform their peers [7]. In most industries, established competitors and new entrants alike are leveraging data-driven strategies to innovate, compete, and capture value. In healthcare, data pioneers are analyzing the health outcomes of pharmaceuticals when they were widely prescribed, and discovering benefits and risks that were not evident during necessarily more limited clinical trials [10]. Such

knowledge then informs the creation of new service offerings and the design of future products

Big Data is helping to create new growth opportunities and entirely new categories of companies, such as those that aggregate and analyze industry data [8]. Many of these are companies that sit in the middle of large information flows where data about products and services, buyers and suppliers, consumer preferences and intent can be captured and analyzed. Forward-thinking leaders across sectors are starting to aggressively to build their organizations' Big Data capabilities [9].

3. How Clinical Analytics Works

In the ever-changing field of medicine, providers are at the forefront in decision making. In order to make decisions based on clinical and evidence based medicine, proper assessment and utilization of data is being used [1]. In order to offer the best quality of care for a patient, medical and health care providers must have access to the right information at the right time. Medical professionals must know what data exists and be able to utilize the data in the right way to offer the best care for the patient [3].

Too many times have health care providers been faced with a medical situation and offered a wealth of statistical information but were unable to decipher the importance or specific details that were needed for care [1]. Clinical analytics and intelligence alleviates these problems and allows clinicians to extract the exact data needed to provide the best quality of care for their patients [4].

A number of fields and systems are used to offer information and statistics in the health care organization [5]. These systems may include pharmacy, labs, billing, finance, patient claims, and more. Business or clinical analytics extract all of the data from the systems and put it into a centralized repository that is neat and concise. Decision making is made more efficient and purposeful [1, 6].

4. The Benefits of Clinical Analytics and Intelligence

The key component of business analytics and intelligence for those in the health care industry is

the integration data [1]. Clinical and financial data can be compiled into one repository and accessed for precise care management [3]. As a result, the patient gets the best care from a well-informed medical provider. Other benefits may include:

- Decision-making support and evidence
- Case management and stored information
- Knowledge management and organization
- Lifecycle management data processing
- Analytics and informatics

5. Competitive advantage for Marketing Analytics

Payer restraints, more complex products and more compact sales forces have sharpened the imperative to get the right drug to the right doctor with the right message at the right time for the right patient [11]. The data underpinning a conventional strategy is likely to be the same data fed to competitors.

Data in itself offer no competitive advantage. Insight, on the other hand, can be unique and proprietary. Without this insight, marketers will continue to converge on the same targets with diminishing returns and relatively low share of voice [5]. Moreover, target lists of doctors generated by external consultants are rarely subject to any iterative process of validation and improvement.

The opportunities for predictive modeling has opened up that each market is acquiring unique datasets such as anonymized patient-level data [11]. Instead of targeting on one parameter pharmaceutical companies can use every single dataset and look for predictors of what best explains the future intent to prescribe [6].

With a hosted solution, the technology provider maintains the predictive models and a secure infrastructure, but the company supplies the data, collaborates on the predictive framework and owns the deliverables [4]. As experience and value build, the operation can eventually be shifted in-house. Not that continuous data analysis is an alien concept in pharmaceuticals. R&D departments already apply these technologies to discover new compounds and meet clinical-trial requirements [11]. Leveraging the same technologies from R&D into the commercial side of the business can pay significant dividends.

6. Conclusion

As life sciences organizations face novel drug discovery and patent challenges, being effective with data becomes essential for sustained success now and into the future. Those who understand how to manage both the internal and external data relevant to their products, markets and customers will create the opportunity for competitive advantage based on improved insight.

If life sciences organizations are able to apply their acumen with big data and analytics to drive decisions and engage in smart collaboration, they will find order and opportunity where others see chaos.

7. References

List and number all bibliographical references in 9- point Times, single-spaced, at the end of your paper. When referenced in the text, enclose the citation number in square brackets, for example [2-4], [2, 5], and [1].

[1] EHR Healthscope. (2012, February 9). The Importance of Clinical Analytics and Intelligence for Health Care Providers and Businesses. Retrieved January 22, 2017, from http://www.ehrscope.com/blog/the-importance-of-clinical-analytics-and-intelligence-for-healthcare-providers-and-businesses/

[2] Karara A (2016) Clinical Trial – End to End Optimization. Imperial Journal of Interdisciplinary Research (IJIR). Vol-2, Issue-11, 2016

[3] Lodha A (2016) Clinical Analytics – Transforming Clinical Development through Big Data. Imperial Journal of Interdisciplinary Research (IJIR). Vol-2, Issue-10, 2016

[4] Lodha A (2016) Agile: Open Innovation to Revolutionize Pharmaceutical Strategy. Imperial Journal of Interdisciplinary Research (IJIR). Vol-2, Issue-12, 2016

[5] Lodha A (2016) Analytics: An Intelligent Approach in Clinical Trial Management. J Clin Trials 6:e124. doi: 10.4172/2167-0870.1000e124

[6] Lodha A (2016) Big data analytics – Clinical integration and visualization. JCTR 2016, Volume 6, Issue 4 ISSN: 2167-0870

[7] Lodha A (2016) Globalization of Clinical Trials: Ethics and Conduct. J Biotechnol 6: 229. doi:10.4172/2155-952X.1000229

[8] Lodha A (2016) Editor's Note: Journal of Clinical Trials. J Clin Trials 6:e125. doi: 10.4172/2167-0870.1000e125

[9] Lodha A (2017) Clinical Trial Analytics: Fulfilling the Future of Clinical Operations Insights. Imperial Journal of Interdisciplinary Research (IJIR). Vol-3, Issue-1, 2017

[10] McGuire, T., Manyika, J., & Chui, M. (2012, August). Why Big Data is the new competitive advantage. Retrieved

January 22, 2017, from http://iveybusinessjournal.com/publication/why-big-data-is-the-new-competitive-advantage/

[11] SAS. (n.d.). Pharma must adopt predictive analytics for competitive edge, healthier bottom line. Retrieved January 22, 2017, from http://www.sas.com/news/newsletter/feature/pharmahomer.html