June 15, 2018

Dear Regina,

Welcome to BioMarketing Insight's monthly newsletter.

Last month, I covered "Drugs and Products to Watch in 2018." If you missed last month's article, click here to read it. This month we'll cover "Highlights from the Bridge to Pop Health Conference 2018."

Read on to learn more about this topic and other current news. The next newsletter will be published on July 15th, 2018.

We encourage you to share this newsletter with your colleagues by using the social media icons below, or by simply forwarding this newsletter or use the link below. Should you or your colleagues want to join my mailing list, click on the link below.

Sincerely,
Regina Au
Principal, New Product Planning/
Strategic Commercial Consultant
BioMarketing Insight

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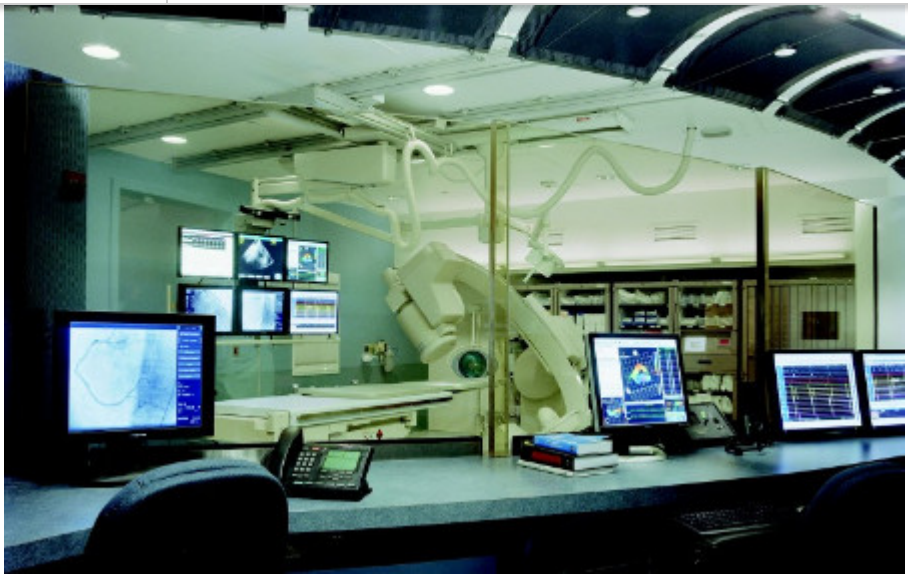

Developing a Product? Commercializing a Product?

If you are developing a product and have not conducted the business due diligence to determine commercial viability or success, contact me for an appointment. For successful commercial adoption of your product or looking to grow your business, contact me for an appointment.

For more information on our services, click on the links below:

Product Development
Market Development
Marketing Strategies

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Save the Date: BioProcess International Conference - September 4 - 7, 2018, Hynes Convention Center

Development" under the Speed from Gene to Market Track on Friday, September 7th, 2018 at 8:25 am. For more information on this conference click here.

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BIO Convention, 25th Anniversary - Making History

Our panel discussion entitled "Our Microbiome and Its Relationship to Various Diseases" under the Next Generation Biotherapeutics Track was a huge success. We had a standing room only session. I like to thank my distinguished panel of speakers for their presentation and interactive discussion:

Bernat Olle, CEO, Vedanta Biosciences
Matt Henn, Executive Vice President, Microbiome Research and Development, Seres Therapeutics
Philip Strandwitz, Co-founder and CEO, Holobiome
Sonia Timberlake, VP Research, Finch Therapeutic

I will be highlighting BIO's 25th Anniversary in making history in my upcoming July newsletter. For more information on BIO, click here.

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Why Our Microbiome is Important to Our Physiology and Diseases

I am pleased to announce that my article entitled "Why Our Microbiome is Important to Our Physiology and Diseases" was published in the International Journal of Clinical Pharmacology & Pharmacotherapy. This article reviews the results of the Human Microbiome Project and the factors that affect our microbiome in relation to our healthy state and dysbiosis or disease state. To read the article, click here.

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Immunooncology: Can the Right Chimeric Antigen Receptors T-Cell Design Be Made to Cure All Types of Cancers and Will It Be Covered?

I am pleased to announce that my article on "Immunooncology: Can the Right Chimeric Antigen Receptors T-Cell (CAR-T) Design Be Made to Cure All Types of Cancers and Will It Be Covered?" has been published in Journal of Pharmaceutics. This article reviews the mechanism, design and administration of CAR-T cells, and whether payers will pay for this new technology. To read the article, click here.

Highlights from the Bridge to Pop Health Conference

This year's conference focused on 1) using predictive analytics to target high-risk populations and increase compliance and 2) improving outcome and managing utilization through novel delivery, coordinated care and population health management.

I will cover three main topics: 1) using predictive analytics to identify high risk patients; 2) transforming from a fee-for-service to an ACO to improve outcomes; and 3) behavior economics in changing behavior.

Keynote Speakers

1) **Gowtham Rao, MD, PhD**, Chief Medical Informatics Officer, BlueCross BlueShield of South Carolina.

Dr. Rao used predictive analytics to target the Medicare population who tend to have more health issues such as cancer, diabetes and congestive heart failure in trying to improve outcomes for incidences that drive up the cost of healthcare which includes dehydration admissions following chemotherapy, falls among the elderly at home and decompensation in the hospital. This also includes nonclinical factors such as missed appointments, travel barriers and use of out of network providers that contribute to these undesirable outcomes.

Based on best practices they carefully designed and implemented a five (5) step standardized framework to generate and evaluate patient level predictive models incorporating the Observational Health Data Science and Informatics (OHDSI) software to accomplish the following:

1) Transparently defining the problems
2) Selecting suitable data sets
3) Constructing variables from observational data
4) Learning the predictive models
5) Validating the model performance

to be integrated into the clinical work flow to be successful.

2) **Scott Berkowitz, MD, MBA**, Senior Medical Director, Accountable Care, John Hopkins Medicine.

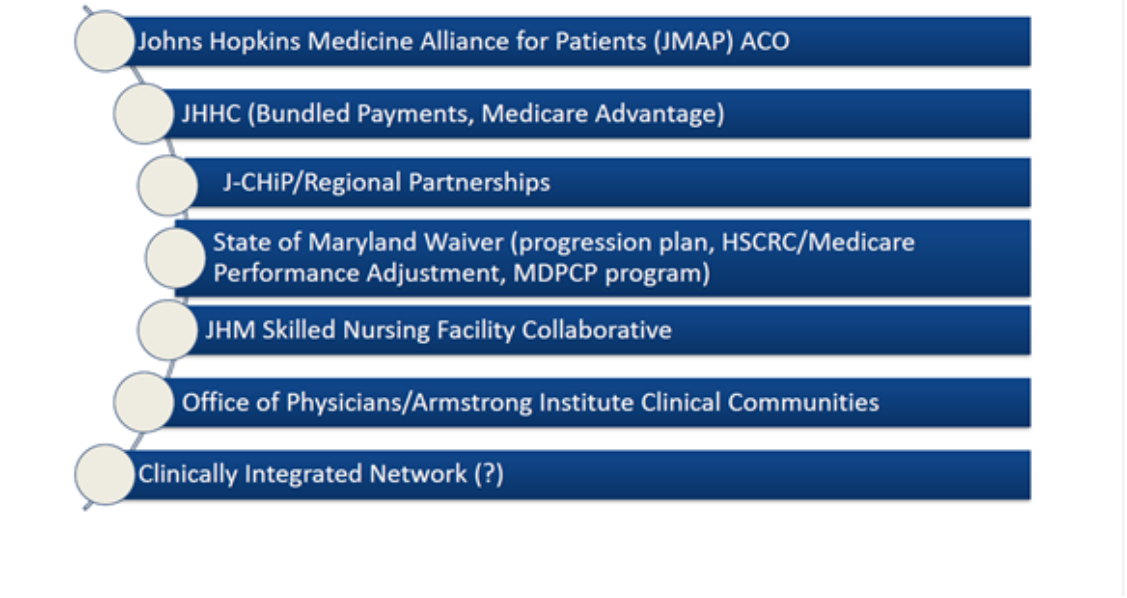
Dr. Berkowitz shared his experience with John Hopkins Medicine (JHM) switching from a fee-for- service model to a valued based model by being qualified as an Accountable Care Organization (ACO). In qualifying as an ACO there are certain criteria that they must meet and the organization needed buy-in from the top down. I also believe that there needs to be buy-in from the bottom up as to how everyone will benefit from this new structure.

(increase) Value = (increase) Quality / (decrease) unnecessary cost

This equation supports the ACOs philosophy to eliminate volume or fee-for-service which is the standard of care today in most institution and focus on what is good for each patient overall whether it be preventive measures including non-clinical methods in keeping a patient healthy. This is a paradigm shift from the norm but the industry is heading in this direction in trying to keep healthcare cost down and delivery better healthcare in a category termed Alternative Payment Model. Medicare's definition for this payment model that includes ACOs, medical homes, etc. is basing it on the following:

1) Some payments are linked to the effective management of a population or an episode of care.
2) Payment is still triggered by delivery of services, but opportunity for shared savings or 2-sided risk.

As the old cliché says, it takes a village to raise a child, it took the whole organization and its affiliates to implement this system in order to reach their goal. Below is an example what JHM incorporated to make this new structure work.

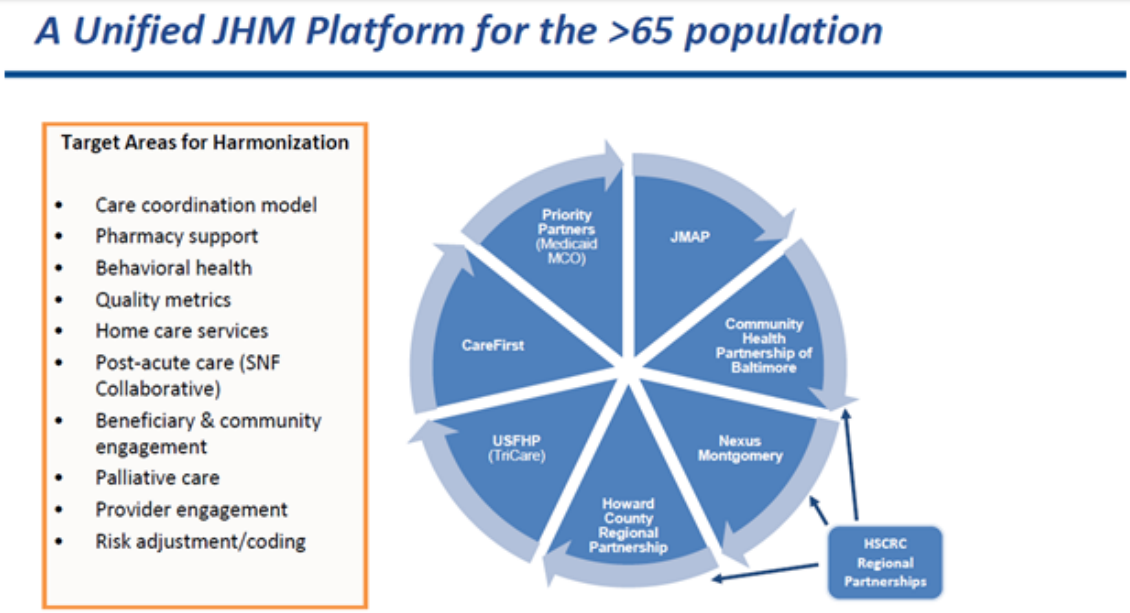


The clinically integrated network incorporated 10 large provider organizations throughout the area.

To access quality and whether they reached their goal, they implemented metrics that were designed to show what portion of the population is either getting needed services or achieving specific health outcomes.

In 2016, they saw improvement across key utilization indicators and achieved a quality score of 92.42% based on combination of performance and reporting. They were achieved eligibility threshold to shared savings. However, cost or care remains a challenge.

JHM has taken on a monumental task of transitioning to a value structure and targeting multiple areas to achieve it as shown below. This type of transition can't be achieved overnight or in one year. As they address each area, it will take time to find the best solution for quality of care. They are definitely off to a good start and on the right track.



3) Co- presenters: **Sandeep Kishore, MD, PhD**, Associate Director, Arnhold Institute for Global Health, Icahn School of Medicine, Mount Sinai Health and **Dr. Albert Chan, MD**, Chief of Digital Patient Experience, Sutter Health.

Their presentation entitled "Using Behavioral Economics to Engage Both High and Low Risk Patients" was another popular topic on how to incentivize patients to change their behavior.

Since the advancement of new technology, many people may first think about using digital tools to help change a patient's behavior. While this may be true with some people particularly millennial that grew up on digital tools, changing a person's behavior can be accomplished by even simple things. Dr. Chan have found the following things:

1) People's behavior or norm is their default behavior

2) Auto enrollment, making it easy for the patient resulted in a boost in participation

3) Framing of words, how you tell someone to do something can motivate them to change behavior

4)Loss of incentives is more powerful than gain. For example, they found that if you tell someone that they will get $200 but lose $10/day when they don't do something is more of a motivator than if you tell someone that they will earn $10/day.

The reason why I think loss works better is because in the mind of the patient, they already had the $200 and if they don't change behavior, they lose it. There is nothing to gain, only something to lose. As oppose to earning $10/day to reach $200. It's the same outcome

5) Information delivered in common language (they can understand it) leads to improved outcome.

6) Design (how it is presented or delivered) is more important than fact or content

7) Align physician and patient incentives delivers better outcome.

In bringing in digital tools, Dr. Chan warns that you can't take data at face value, but you need to understand the question you are asking. For example he found that about 65% of the patients who were 65 years and older had cells phone implying that using people's cell phone could be a good tool in sending reminders to this population. It wasn't until he dug deeper that he discovered that only about 15% actually use their cell phone. Therefore, in this case using cell phones for sending reminders would not be a viable option in getting patients to change their behavior.

In Dr. Kishore's examples were focused on the Medicaid population where 50% of the medicaid patients at Mount Sinai had multiple chronic conditions at age 35 and the percentage only increase as this population aged where 95% of the patients in the 85+ age bracket had multiple chronic conditions. They implemented a coordinated and Holistic Health care Model between the physician including specialists, social worker and care coordinator to help stabilize their patients multiple chronic conditions. This often involves providing housing, food or other assistance.

These are the behavior economics solutions that they implemented and they will know the

to and not the latest technology at least in this group.

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Closing Thoughts

Predictive analytics is very useful in identifying the patients at the highest risk in order for healthcare professional to intervene and avoid costly expenses such as hospitalization. However, in using these analytics, one has to know and define the questions one is trying to answer and set up a standardize framework to incorporate the right data to answer these questions. Dr. Rao went into depth on the process they went through to accomplish this because this aspect of the program is so important in finding the high risk patients accurately.

However, it can't stop at the high risk patients. Once these patients are identified and helped, then one has to identify the next tier down because one want to prevent this lower risk group from move up to the high risk group adding cost to the healthcare system thereby defeating the main goal of what one is trying to accomplish.

It has been talked about for years how ACOs will save the healthcare system money and delivery better care. From Dr. Berkowitz's presentation, it takes a whole village to incorporate the concept of ACOs particularly getting buy-in from all healthcare professionals and coordinating care with everyone depending on the needs of the patient.

It won't happen over night or in a year as there are numerous areas that needs to be addressed before the program becomes beneficial in addition to the coordination of everyone. It's very complex and if you don't have the buy-in from everyone (top down and bottom up), it's not going to work effectively.

are many ways to do this. While digital tools maybe at the top of one's mind, one needs to step back and look at what will work for the different populations, marketers refer to as market segmentation and identify the tools (whether it be digital or old school) that the patient relates to and will motivate them.

This means that multiple programs may have to be implemented across the board as the old cliche says, "one size does not fit all." It also mean that these programs has to be tailored for each geographic area as the population demographics and culture or process can be different. What works in Massachusetts may not work in Kansas City and one would have to adjust the program accordingly. If we think of each state as a different country you can't go wrong.

The industry is slowly reaching their goal to delivery better healthcare and just like medicine, it is trial and error.

If you are developing programs as the ones discussed in this newsletter and need help with behavior economics in incentivizing patients according to different demographic populations or nonclinical factors that affect outcome, email me or call me at 781-935-1462 to discuss this further.

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Should you have any questions or need of assistance with your business due diligence, determining your product's value proposition and economic value of your product, feel free to contact me at 781-935-1462 or regina@biomarketinginsight.com.
