HARNESSING DATA: TRANSFORMING DATA INTO ACTIONABLE INFORMATION

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Like the rest of the world, healthcare has been bitten by the "big data" bug. States have greater access to more data than ever before. The proliferation of Health Information Exchanges, Data Warehouses, and improved coding specificity under ICD-10 represent new or expanded data sources. However, increased access to data does not necessarily translate into greater information. While subtle, the difference between data and information can have big implications when determining how to spend scarce Medicaid dollars. The problem is that we don't always measure what matters and quite frequently make what we can measure matter. This can lead to faulty analyses, poor decision making and misallocation of resources.

Data to Information

Raw, unprocessed data is little more than numbers on a screen. It isn't until we apply an analytical framework that the context of the data begins to emerge. It is through the analytic process that data is transformed into useable information. Different analytical approaches applied to the same data can result in different information and those contextual differences can result in even larger differences in the options pursued as a result of the new information. Given the complexities, it is easy to understand why the large influx of healthcare data has not translated into increased information.

One of the largest barriers standing between healthcare data and actionable insights is the quality of the data. Encounter data is notoriously incomplete and/or inaccurate. However, incomplete data can be supplemented by other data sources and actions can be taken to improve data quality.[1] Another barrier is related to data analytics tools and "know how". Modern day healthcare is beginning to emphasize artificial intelligence and machine learning. These "big data" concepts and methods are largely based on recognizing patterns in our data. Without accurate data, it is quite possible for important patterns to go unnoticed. Or worse, it is possible for incorrect or non-real patterns to be found. For this reason, we emphasize improving both data quality and developing competency around data analytics.

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[1] Quality Encounter Data: Not So Elusive

Looking towards the future

In Medicaid, the majority of healthcare data, including claims data, tells us about events that happened in the past. The natural first step is to use this data for descriptive analyses such as utilization and cost. However, that same data can also be used to tell us more about the population by calculating performance measures, identifying health disparities, or comparing outcomes.

The next generation of data analytics is to take the data at hand and use it to attempt to answer questions about the data we don't have. For example — We can use data from 2017 to determine the number patients with unplanned readmissions within 30-days of discharge. This data provides us with a profile of the circumstances that resulted in readmissions which can be used to predict the number of patients that will be readmitted in 2018. Going one step further, these same patient profiles can be used to determine the risk that a specific patient will be readmitted within 30-days of discharge. Take yet another step and consider the addition of data elements from a nationally available data source such as the American Community Survey data set and you could identify social risk factors that impact the potential for successful avoidance of 30-day readmissions. This level of data analytic competency can result in targeting limited resources in the most efficient manner to get the best outcome.

Next Steps

The following three steps can get you started in moving down the pathway to harnessing data and transforming it into actionable information.

1. **Identify different data analytic approaches.**
   - Descriptive: what is the problem?
   - Diagnostic: why has the problem happened?
   - Predictive: what will happen in the future?
   - Prescriptive: what is the best course of action?
2. **Only measure what matters.**
   Until you identify the problem to solve, you can't measure what is relevant. Engage stakeholders, end-users and your information technology experts to identify the measures that matter. Take steps to avoid over-measurement. You can't eat an elephant in one sitting — it takes time. Set short , medium- and long-term goals for what you want to measure and build a roadmap to get you from the data you have today to the information you want tomorrow.
3. **Put your data into context.**
   In order to make the best decisions, you have to interpret the data. To interpret the data you need to understand the context of the data. Data context can be established by:
   - Asking what the data means. Just because cost decreases doesn't mean the process is working. For example, lower costs may mean fewer providers and fewer providers may impact network adequacy.
   - Determining its level of importance. Is it a primary outcome measure or a secondary outcome? Is it a "true" measure or a proxy measure? Is lower cost really the primary result or do you want better quality of care?
   - Understanding the impact of the data on the program. If there is a higher incidence of Hepatitis C and an increased 30-day readmission rate, what is the impact when these two data points are combined?

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