INSTITUTE FOR HEALTHCARE VALUE ANALYTICS

Email: info@valueanalytics.healthcare
Office Phone: (240) 406-5992

CASE STUDIES FROM THE REAL WORLD

COURSE DESCRIPTION

Knowledge and skill are not enough to make an impact. They need to be applied, and solutions that deliver tangible results need to be created. This course complements the primer and introduction courses by providing an opportunity to practice with real scenarios from healthcare organizations.

One case study is covered in each session. The cases are related to topics covered in previous courses but are open ended and require more critical thinking.

Session 1: Length of Stay

Length of stay is a key metric to measure efficiency in healthcare facilities. By optimizing length of stay, unnecessary use of facility and human resources can be avoided and incoming patients can be seen more quickly.

Upon completing the case, you will be able to:

1. Identify the proper criteria and patient population for length of stay improvement
2. Analyze and visualize baseline performance and compare to a benchmark
3. Calculate the potential opportunity using the difference between actual performance and benchmark
4. Understand the relationship between process measures and length of stay
5. Summarize the key findings and identify specific areas for improvement

Session 2: Blood Transfusions

Blood products that are transfused to patients can cost millions of dollars a year to acquire. Healthcare providers can leverage best practices to reduce unnecessary usage and spending related to blood products and save 10 – 15% annually.

Upon completing the case, you will be able to:

1. Build an algorithm that measures adherence to best practices based on clinical data
2. Visualize baseline performance that incorporates the best practice criteria
3. Quantify the best practice's potential impact on quality and cost
4. Understand the relationship between best practice/appropriateness and outcome measures
5. Summarize the key findings and identify specific areas for improvement

Email: info@valueanalytics.healthcare
Office Phone: (240) 406-5992

Session 3: Lab Tests

Some lab tests offered by healthcare providers are sent to outside vendors because the tests require specialized equipment. These tests are unusually high in price due to the reliance on a vendor. This case study covers how to assess outsource vs. in-house capabilities for a set of expensive lab tests.

Upon completing the case, you will be able to:

1. Create a baseline data set containing only the pertinent tests
2. Visualize the results in aggregate and in time series
3. Calculate the input values based on the baseline data to be used in a financial model
4. Build a financial model and conduct scenario analysis
5. Develop a summary to be used as a business case and ROI analysis

Session 4: Imaging Procedures

Imaging or radiology procedures provide valuable insights to diagnose patients' diseases and conditions. However, they are often overutilized. The impact of overutilization is significant for patients and insurance organizations because the billed charges for imaging procedures are often high due to expensive equipment required for the procedure. This case assesses the opportunity and develops insights to optimize the utilization of ultrasound procedures in a healthcare facility.

Upon completing the case, you will be able to:

1. Build an algorithm to identify unnecessary procedures
2. Visualize the results in aggregate and over time
3. Know the financial implications from the patient and insurance policy perspectives
4. Understand the inner workings of Best Practice Alerts in the EMR to change provider behavior
5. Summarize the findings and identify specific areas for improvement

Session 5: Medications

Some medications often have similar therapeutic characteristics yet can vary significantly in price. Healthcare providers and organizations have to keep up with the latest pharmaceutical developments to ensure maximum cost-effective use of medications. This case study assesses the opportunity and develops insights to optimize the utilization of two medications, one newer than the other, in optimizing the cost-effectiveness of treating patients with a heart condition.

Upon completing the case, you will be able to:

1. Apply research findings to operations
2. Identify medications that could be eliminated or substituted

Email: info@valueanalytics.healthcare
Office Phone: (240) 406-5992

3. Quantify the potential quality and financial opportunity based on historical data
4. Develop a dashboard to track the usage of targeted medications
5. Understand how a dashboard could be automated and shared
6. Learn how the product selection committee works in a healthcare organization

Session 6: Quality Measurement

There is no shortage of metrics to measure quality in healthcare. While the measures' intentions and definitions could be determined through meetings and discussions, the ability to develop algorithms and actually monitor the measures timely and accurately is a critical limitation among healthcare organizations. Without the ability to measure, improving performance is also a challenge. This case provides a glimpse of the complex process of using raw data to develop a measure that tracks the incidence of pressure ulcers.

Upon completing the case, you will be able to:

1. Understand how quality measures are defined, measured, and reported
2. Develop a quality measure based on predefined criteria
3. Create a dashboard to report performance on a routine basis
4. Brainstorm ideas on how to improve quality
5. Learn the challenges associated with quality measures

Session 7: Bundled Payment

Bundled payment contracts are becoming popular as a mechanism to eliminate unpredictability in medical bills and to manage costs. Healthcare insurance organizations and large employers are the primary users of the arrangement that designates a fixed price for a condition to cover all the required medical needs. This case will cover how to derive the price for a bundled contract by using longitudinal professional and hospital billing data.

Upon completing the case, you will be able to:

1. Merge data from multiple sources to create a longitudinal data set
2. Determine the method of selecting the appropriate patients, time frame, and events
3. Develop a process to track quality and financial results for bundled vs. unbundled procedures
4. Understand the benefits and risks of bundled payment contracts
5. Explain the difference between billing and claims data

Email: info@valueanalytics.healthcare
Office Phone: (240) 406-5992

Session 8: Wearable Device

The future of healthcare relies on more real-time, relevant, and applicable data. Wearable devices such as a smartwatch provide a promising step toward that goal, and they have been adopted by millions of people to provide information on their health, activity, diet, and sleep. This case provides a glimpse of how data is collected through the devices and how it could be used to generate unprecedented insights related to improving health and wellbeing.

Upon completing the case, you will be able to:

1. Understand how real-time health data is collected and processed
2. Be able to explain the role of hardware, software, and data processing
3. Develop a data processing workflow to convert raw real-time health data into meaningful insight
4. Explain how value-based care can benefit from innovations in wearable technology and solutions
5. Understand the challenges around privacy, data use, and data ownership related to wearable devices

Intended Audience
Any healthcare provider, data analyst, management professional, or student looking to jump start their skills in applying data analytics while understanding the business, clinical, or research objectives. The primer and introduction courses are prerequisites for this course as the case studies require advanced healthcare knowledge and data analytics skills.

Required Reading
Data to Value: How to Unleash the Power of Data for Better Quality and Lower Cost Healthcare by K.H. Ken Lee

Required Software
Microsoft Excel, Microsoft Access (Only available on Windows), Tableau, and Alteryx Designer (Only available on Windows)

For MAC (Apple OS) users: Microsoft Access and Alteryx are not available on the Apple OS. Use a parallel software to run Windows on your computer or create a virtual machine account with any vendor such as Amazon Workspaces or Microsoft Azure.

Tableau Public is free and can be downloaded here: https://public.tableau.com/en-us/s/download

Alteryx Designer has a free trial version at: https://www.alteryx.com/products/platform-details/product-trials

Although we will use these specific software programs, other software programs will have similar functions and the methods covered in the course will be transferrable.

Email: info@valueanalytics.healthcare
Office Phone: (240) 406-5992

COURSE PLAN

As you progress through the course materials, reach out to us at any time if you have questions. We will respond within 24 hours.

ACTIVITIES
Session 1: Length of Stay Topics: Utilization management, benchmarking, internal variation, process measures, outcome measures **Session 2: Blood Transfusions** Topics: Utilization management, appropriateness measure development, best practice guidelines **Session 3: Lab Tests** Topics: Internal sourcing, business case, ROI analysis, time-series visualization **Session 4: Imaging Procedures** Topics: Standardization, elimination, utilization management, appropriateness, BPA, guidelines, algorithm for flagging data points **Session 5: Medications** Topics: Standardization, elimination, substitution of product resources **Session 6: Quality Measurement** Topic: Measure development **Session 7: Bundled Payment** Topics: Longitudinal analysis, bundled price modeling **Session 8: Wearable Device** Topics: Innovation, scalability, accessibility, personalization, real-time data, data science