c|h|a
Colorado Hospital Association

Utilizing Data and Analytics to Improve Health Care Value

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No financial disclosures.

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Vacation 2019

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How did you choose?

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Hotel "Rating" Systems

Quantitative

Star Ratings

AAA Diamond Ratings

Qualitative

Trip Advisor

Google

Expedia

Neither!

- Friends' recommendations
- Last-minute availability

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2018 TRAVELERS' CHOICE tripadvisor

2018 CERTIFICATE of EXCELLENCE tripadvisor

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Decisions rely on informative, actionable data

7

List steps to make data informative and actionable

Utilize CHA ODHIN platform to access hospital performance data

Investigate data to identify variation for improvement or areas of priority

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1. Collecting data
2. Tracking data
3. Analyzing and interpreting data
4. Acting on data

Primary Steps for Data Management

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Donabedian Model

Structure

How care is organized. The stable elements of organization and infrastructure that comprise a healthcare delivery system.

Process

What is done – the actions that are taken and how they are carried out. Includes the interaction between patients and providers.

Outcome

The end results of care. What happens to the patient's health, how he or she experiences care and derive satisfaction.

https://www.healthknowledge.org.uk/content/principles-underlying-development-clinical-guidelines-clinical-effectiveness-and-quality

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Structure	Process	Outcome
# of Rooms	Check-in/check-out	# of visitors/year
Pool	Room turnover	Hotel awards or rating
Fitness Center	Concierge	Visitor satisfaction
Staff Employees	Valet	Revenue

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Structure	Process	Outcome
# of primary care clinics	diabetic foot examinations	Surgical site infections
# of physicians in a rural community	flu vaccinations in patients with COPD	COPD exacerbations hospitalizations
CT scan or MRI	medication reconconciliation	Patient satisfaction
EHR	time to antibiotics	rates of MI

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Balancing Measures

Unintended consequences of change

Let's consider...

- new DVT prophylaxis protocol
- early antibiotics for pneumonia

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Dimensions of System Performance

Outcome
quality, timeliness

Transaction
volume, # of patients

Productivity
utilization, capacity, demand

Cost
charges, staff hours, materials

Appropriateness
validity, usefulness

Patient Satisfaction
surveys, complaints

Staff satisfaction
surveys, turnover

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Effective QI data

- Actionable insights
- Time-to-Value
- Accessibility and flexibility
- Benchmarking and collaboration

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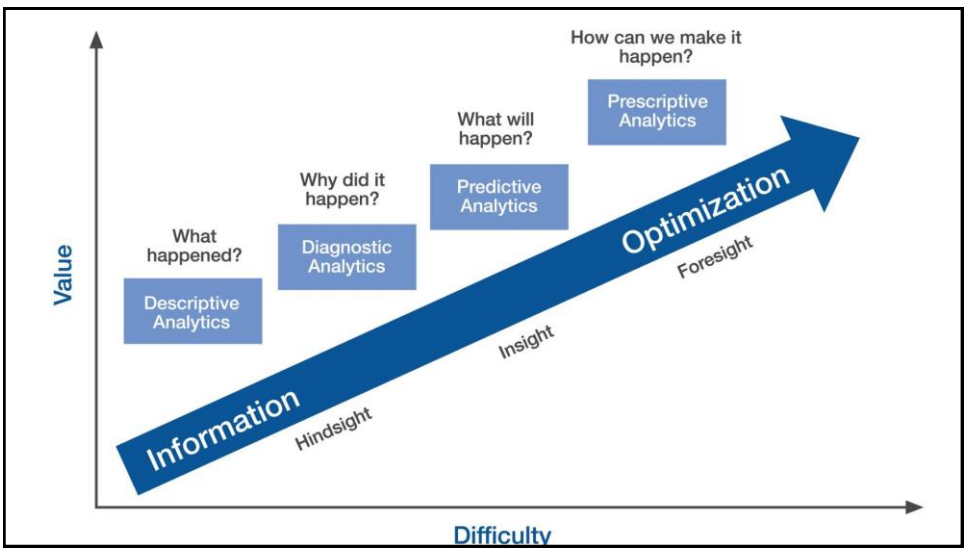

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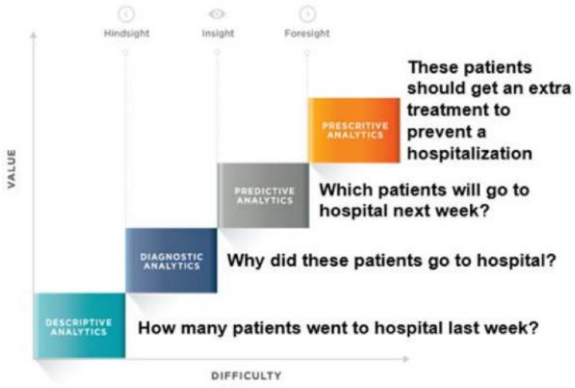
Health care lens



https://fmcna.com/insights/education/types-of-healthcare-analytics/ 17

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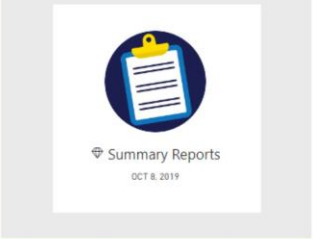

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- On your laptop, start your browser
- Go to URL: mychadata.com
- Log in using username and password from your badge

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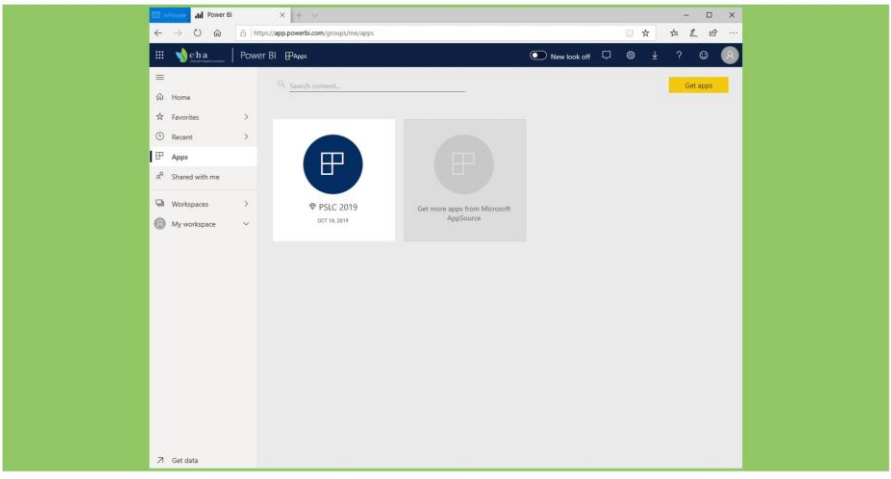

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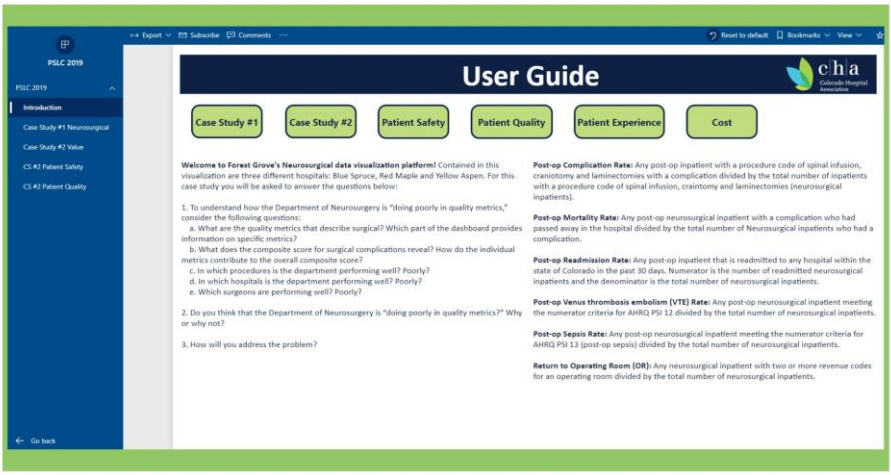
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Patient Quality
Patient Experience
Cost
Welcome to Forest Grove's Neurosurgical data visualization platform! Contained in this visualization are three different hospitals: Blue Spruce, Red Maple and Yellow Aspen. For this case study you will be asked to answer the questions below:
1. To understand how the Department of Neurosurgery is "doing poorly in quality metrics," consider the following questions:
a. What are the quality metrics that describe surgical? Which part of the dashboard provides information on specific metrics?
b. What does the composite score for surgical complications reveal? How do the individual metrics contribute to the overall composite score?
c. In which procedures is the department performing well? Poorly?
d. In which hospitals is the department performing well? Poorly?
e. Which surgeons are performing well? Poorly?
2. Do you think that the Department of Neurosurgery is "doing poorly in quality metrics?" Why or why not?
3. How will you address the problem?
Post-op Complication Rate: Any post-op inpatient with a procedure code of spinal infusion, craniotomy and laminectomies with a complication divided by the total number of inpatients with a procedure code of spinal infusion, craintomy and laminectomies (neurosurgical inpatients).
Post-op Mortality Rate: Any post-op neurosurgical inpatient with a complication who had passed away in the hospital divided by the total number of Neurosurgical inpatients who had a complication.
Post-op Readmission Rate: Any post-op inpatient that is readmitted to any hospital within the state of Colorado in the past 30 days. Numerator is the number of readmitted neurosurgical inpatients and the denominator is the total number of neurosurgical inpatients.
Post-op Venus thrombosis embolism (VTE) Rate: Any post-op neurosurgical inpatient meeting the numerator criteria for AHRQ PSI 12 divided by the total number of neurosurgical inpatients.
Post-op Sepsis Rate: Any post-op neurosurgical inpatient meeting the numerator criteria for AHRQ PSI 13 (post-op sepsis) divided by the total number of neurosurgical inpatients.
Return to Operating Room (OR): Any neurosurgical inpatient with two or more revenue codes for an operating room divided by the total number of neurosurgical inpatients.

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Discharge Date
1/1/2019
6/30/2019
Hospital
All
Surgical Procedure
All
PrimaryPayer
All
Physician
All
Forest Grove Neurosurgical Summary
cha
11.28%
Complication Rate
4.80%
Mortality Rate
Complication Rate by Race
Complication Rate by PrimaryPayer
Complication Rate by Hospital
Hospital Blue Spruce Red Maple Yellow Aspen
Complication Rate by Physician
Physician Dr. Harry Potter Dr. Jean Gray Dr. Steven Strange Dr. Wanda Maximoff
Readmission Rate
VTE Rate
Sepsis Rate
Return to OR Rate

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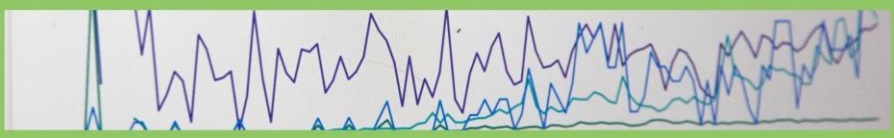
Case study #1

Investigate Rising Complication Rates



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Your department oversees quality and safety for your health system, Forest Grove, which includes three hospitals: Blue Spruce, Red Maple and Yellow Aspen. Over the past few months, your team has noticed an increase in the complication rates of neurosurgical procedures. Your team is gathering to review the data from the preceding 4 months to better understand the increase in complication rates.

The data set available to your team includes data on three neurosurgical procedures: spinal fusion, craniotomy and laminectomies. It includes a composite score for surgical complication rates, post-op venous thromboembolism, return to OR, post-op sepsis, and readmissions. The health system works with the Heroes Neurosurgical Group to provide neurosurgical care to their patients and has granted privileges to each surgeon at all 3 hospitals in the system. The Heroes include four neurosurgeons practicing at the 3 hospitals: Dr. Harry Potter, Dr. Jean Gray, Dr. Steven Strange and Dr. Wanda Maximoff.

This past month, your department was made aware that the Department of Neurosurgery was "doing poorly in quality metrics" and you have been charged with "fixing this problem." You turn to your quality dashboard in ODHIN to begin your investigation.

Consider the following questions:

a. What are the quality metrics that describe surgical performance? Which part of the dashboard provides information on specific metrics?
b. What does the composite score for surgical complications reveal? How do the individual metrics contribute to the overall composite score?
c. In which procedures is the department performing well? Poorly?
d. In which hospitals is the department performing well? Poorly?
e. Which surgeons are performing well? Poorly?

Do you think that the Department of Neurosurgery is "doing poorly in quality metrics?" Why or why not?

How will you address the problem?

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How did your team approach the data?

What insights did you gain about exploring the data through the visualization?

What was most useful about the visualization?

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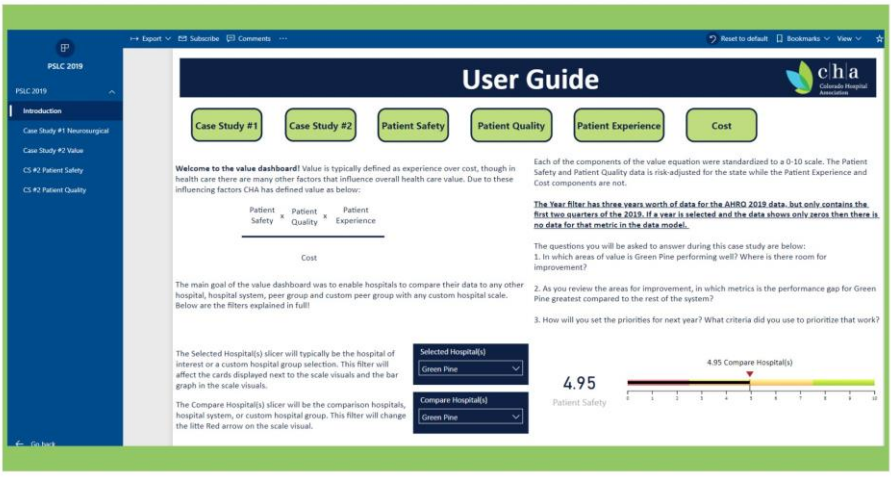

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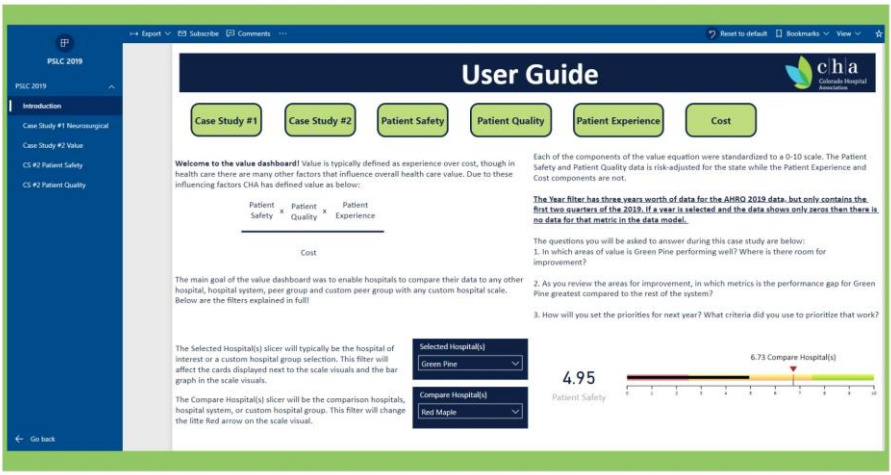
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Welcome to the value dashboard! Value is typically defined as experience over cost, though in health care there are many other factors that influence overall health care value. Due to these influencing factors CHA has defined value as below:
Patient Safety x Patient Quality x Patient Experience / Cost
The main goal of the value dashboard was to enable hospitals to compare their data to any other hospital, hospital system, peer group and custom peer group with any custom hospital scale. Below are the filters explained in full!
The Selected Hospital(s) slicer will typically be the hospital of interest or a custom hospital group selection. This filter will affect the cards displayed next to the scale visuals and the bar graph in the scale visuals.
The Compare Hospital(s) slicer will be the comparison hospitals, hospital system, or custom hospital group. This filter will change the litte Red arrow on the scale visual.
Selected Hospital(s)
Green Pine
Compare Hospital(s)
Red Maple
Each of the components of the value equation were standardized to a 0-10 scale. The Patient Safety and Patient Quality data is risk-adjusted for the state while the Patient Experience and Cost components are not.
The Year filter has three years worth of data for the AHRQ 2019 data, but only contains the first two quarters of the 2019. If a year is selected and the data shows only zeros then there is no data for that metric in the data model.
The questions you will be asked to answer during this case study are below:
1. In which areas of value is Green Pine performing well? Where is there room for improvement?
2. As you review the areas for improvement, in which metrics is the performance gap for Green Pine greatest compared to the rest of the system?
3. How will you set the priorities for next year? What criteria did you use to prioritize that work?
4.95
Patient Safety
6.73 Compare Hospital(s)

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2019
Selected Hospital(s)
Green Pine
Compare Hospital(s)
Red Maple
Value Dashboard
Patient Safety x Patient Quality x Patient Experience / Cost
Value means providing safe, effective, patient centered care for an affordable cost. This dashboard maps out these domains for the selected hospitals, and compares them to peers. Each domain is scored from a range of 0-10 and is green, yellow, or red based on the peer group chosen.
1.81
Patient Safety
2.64 Compare Hospital(s)
4.95
Patient Quality
6.73 Compare Hospital(s)
6.87
Patient Experience
6.68 Compare Hospital(s)
5.23
Cost
4.77 Compare Hospital(s)

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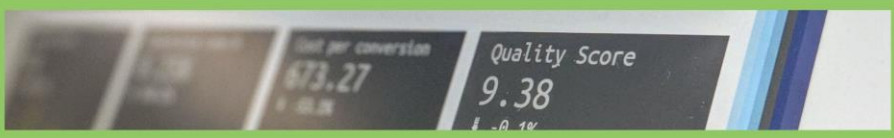
Case study #2

Setting Priorities



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Your department oversees quality and safety for your hospital, Green Pine, which is part of the health system, Forest Grove, which includes an additional three hospitals: Blue Spruce, Red Maple and Yellow Aspen. Your Chief Quality Officer (CQO) has asked you to participate in the planning process for the next year, and specifically has requested that you identify the top 3 priorities for the hospital to address to improve its performance in quality and safety metrics. The CQO indicates that she would like Green Pine to be the "top performer" in the Forest Grove system when it comes to quality, and ideally be able to demonstrate how your hospital's quality performance improves value.

You turn to your ODHIN Value Dashboard to help you.

1. In which areas of value is Green Pine performing well? Where is there room for improvement?

2. As you review the areas for improvement, in which metrics is the performance gap for Green Pine greatest compared to the rest of the system?

3. How will you set the priorities for next year? What criteria did you use to prioritize that work?

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What did your team prioritize?

What data do you need to set priorities?

What was most useful about this visualization?

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Decisions driven by data

Actionable insights
Timely
Flexible & accessible
Benchmarked

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Thank you!

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Structural Measures

Easy to measure
Usually inexpensive

? Link to outcomes
Not readily actionable
Requires observation

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Process Measures

Actionable
Straightforward
Clear link to quality

Defining challenging
? Proxy for outcomes

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Outcome Measures

Matters to patients
Matters to providers
"Observer effect"

Difficult to capture
Significant volume
or time needed

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Improvement
relies on
Measurement

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