

FHCA 2019 Annual Conference & Trade Show

CE Session #52 – Applying Big Data Analytics to PDPM

Wednesday, August 7 – 5:45 to 6:45 p.m.

Celebration 5-6 – Finance/Development

Upon completion of this presentation, the learner will be able to:

- Understand the data assets available to long term care organizations
- Understand the types of analytics that can be applied to long term care data
- Understand how modeling PDPM reimbursement can help set direction for administrative and clinical personnel

Seminar Description:

The move from therapy-oriented to patient-condition reimbursement under PDPM has highlighted the need for long term care and therapy providers to leverage the data available to them from multiple sources, from internal EHR systems to government data. By applying big data and advanced analytics processes, it is possible to improve care delivery and make more evidence-based decisions to ensure the maximum reimbursement with the best outcomes. This session will highlight work done with multiple providers to help centralize data, automate analytics and leverage data-driven insights in the long term care space.

Presenter Bio(s):

Don Maples is a leading expert in accounting and auditing for long term care centers across the Southeast. He has been a featured speaker for several trade organizations, including the Alabama Nursing Home Association and has frequently led training on long term care accounting, auditing and cost reporting.

John Ternent leads the data science and big data initiatives at CRI. He has over 25 years' experience in consulting and profession leading innovative technology solution teams in the health care, retail and hospitality profession. He holds an MS in Data Science, an MBA and the INFORMS Certified Analytics Professional designation.

Dr. Tammy Wingo leads the Analytics practice for CRI. She has extensive experience in the health care profession with 15 plus years doing advanced analytics and visualization. She has developed and led multiple analytical teams across many organizations within the health care profession. Tammy holds a PhD and MBA, both from Vanderbilt University.

Applying Big Data Analytics to PDPM



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John Ternent
Dr. Tammy Wingo
Don Maples

What's Happened?

- Acumen and the analysis of RUG-IV data
- Development of RCS-1
- Development of PDPM
- Underlying analytics drivers

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What is Big Data?

- Big Data normally refers to data sizes that are larger than the average company can process internally
- It also refers to a set of tools and technologies that allow unprecedented levels of analysis on structured and unstructured data

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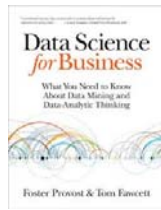
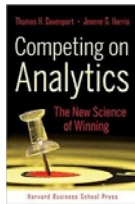
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What is Analytics?

- The process of refining data into insights
- Descriptive analytics : What happened?
- Predictive analytics : What do we think will happen?
- Prescriptive analytics : What should happen?



Some light reading



Does This Stuff Actually Work?

- Yes



Simple Healthcare Predictive Analytics Flag Elderly Fall Risk

Health plans may be able to use a simple predictive analytics framework to identify elderly patients at high risk of injuring themselves by falling.

- And No



MIT fooled Google's AI into believing a cat was guacamole

The Lesson

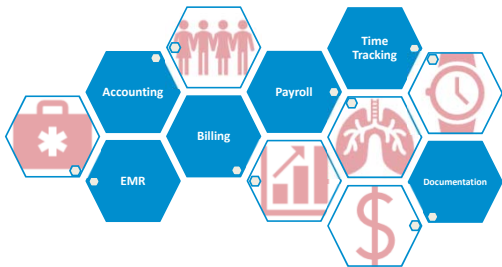
*An
invalid predictive model
is completely indistinguishable
from a
valid predictive model.*

Case in point : Predicting Machine Failures Using Random Forests

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Data in Long Term Care Facilities

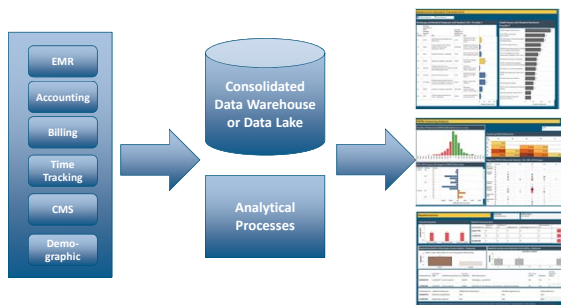


Extracting and Integrating Data from Multiple Systems is Time Consuming, Complex, and Expensive

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Integrated Data And Analytics

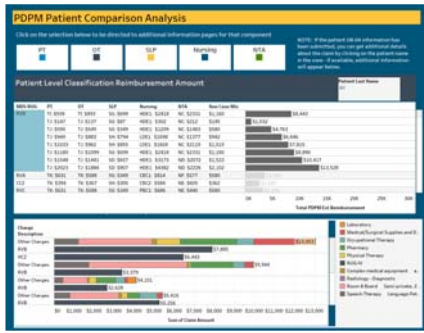


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Example – PDPM Insights

UB-04, MDS, and cost report data are fed into a PDPM simulator to provide predictions and insights

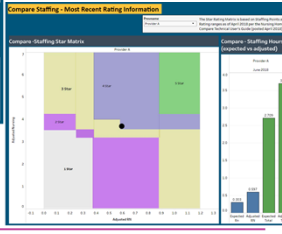
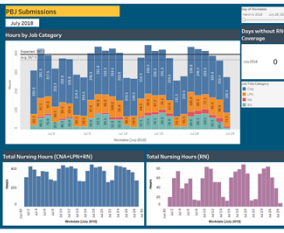


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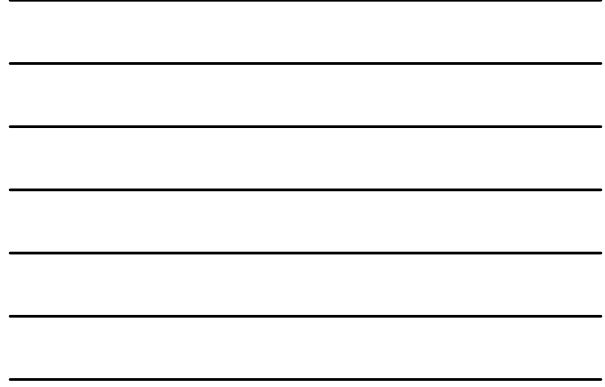


Example – PBJ Staffing Insights

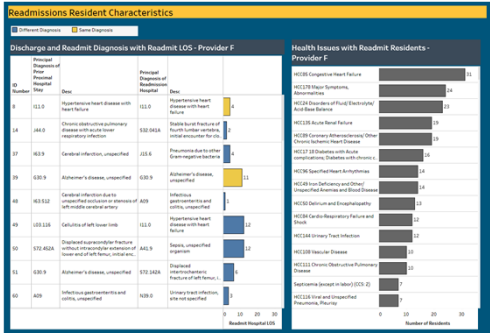


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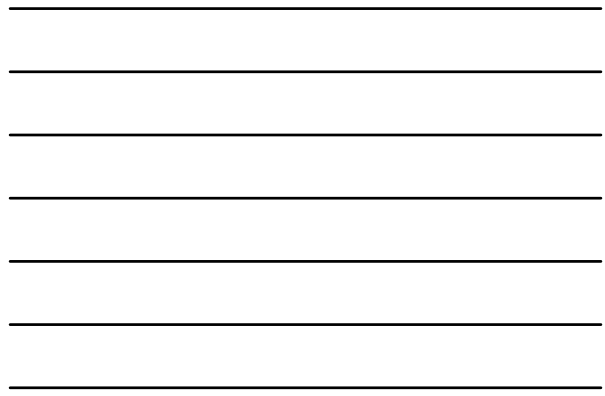


Example – VBP Analysis

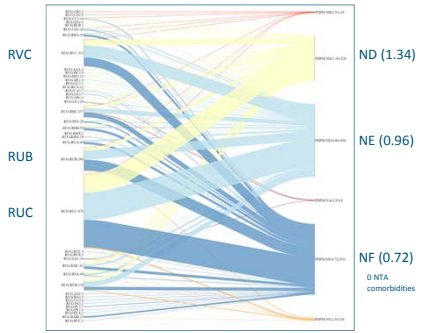


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Example – Patient Flows to PDPM - NTA



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Results and Insights

- Section I and particularly I8000 coding heavily drives NTA and SLP reimbursement
- Primary diagnosis (I0020B) drives PT/OT and SLP (for Acute Neurologic)
- AIDS status and section J procedures are not available on current/historical MDS records
- Nursing utilizes many MDS components but is similar to the existing ADL/Category hierarchy

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