PPR Analysis: Understanding Potentially Preventable Readmissions

Updated| January 2017

Presenter

Samantha Schwind, MAS

- Statistician
- Master of Applied Statistics
- Bachelors in Math Education

PPR Session Objectives

After this presentation, participants should be able to describe:

- What are PPRs?
- Why use PPRs?
- Available PPR Parameters
- Using PPRs in Scorecards
- Running and Reading a PPR analysis

PPR Session Agenda

1. When readmissions qualify as “potentially preventable”
2. Advantages of PPRs over other methods
3. Setting up, running, and exporting PPR data
4. PEAK demonstration

PPR Definitions

- ***PPR*** – **P**otentially **P**reventable **R**eadmission
- ***PPR Logic*** – determines whether the reason for readmission is clinically related to a prior admission
- ***Readmission Chains*** – a sequence of one or more visits related to the same initial admission

PPR “Clinically Related” Logic

- Medical readmissions for
  - a continuation or recurrence of the reason for initial admission, or for a closely related condition
  - an acute medical complication related to care during the initial admission, or an acute decompensation of a chronic problem that was not the reason for the initial admission
- Surgical readmissions to address a continuation or recurrence of the problem causing the initial admission or a complication resulting from care during the initial admission

PPR Advantages

- Extensive medical logic is used to determine "*preventability*"
  - 32,230 (33%) of initial admission base APR-DRGs and readmission base APR-DRGs combinations were determined by medical consultants to be clinically related and potentially preventable, according to a 2008 study [1]
  - Exclusions:
    - Patients with expected readmissions
    - Admissions with unique follow-up requirements
    - "transferred to another acute care facility"
    - "left against medical advice"

PPR Differentiators

- PPRs are *chain-based* and therefore, PPR rates are far less sensitive to readmission outliers than readmission rates alone

- PPRs, by design, only include readmissions based on conditions that *could have been prevented*

PPR Value

- Can reveal issues within:
  - Discharge planning
  - Post-discharge follow-up
  - Coordination between inpatient and outpatient teams
- Allows for tracking measures that drive:
  - Outcomes-based payment
  - Patient safety initiatives
- Costs and charges of readmission chains can be tracked for financial purposes

PEAK PPR Methodology

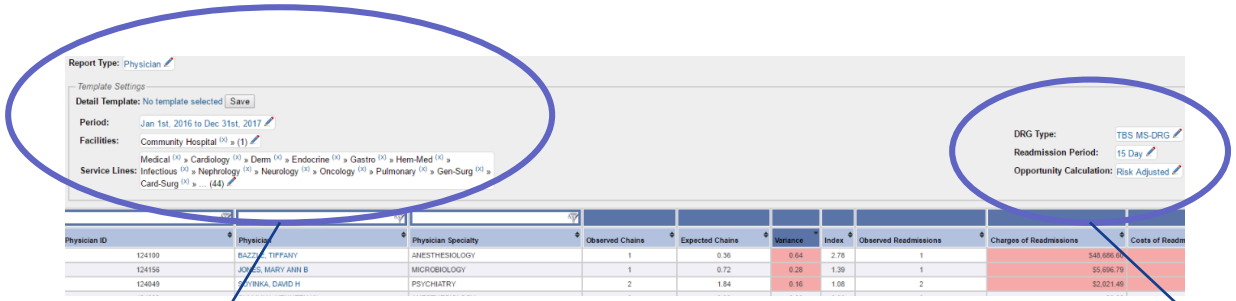
- TBS uses the 3M™ Potentially Preventable Readmissions Grouping Software

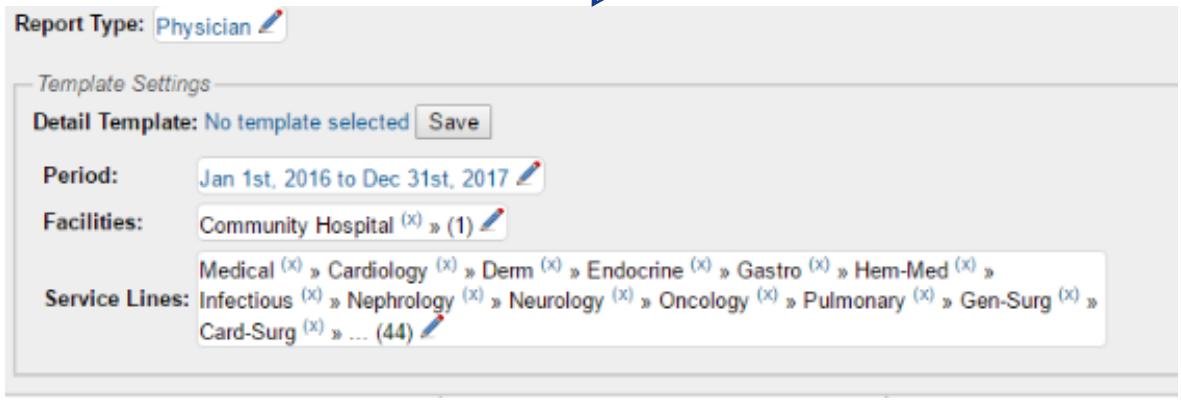
- What if my patients are sicker?
  - Readmission Rates are risk-adjusted for case mix of APR-DRG, age, severity of illness, and mental health status

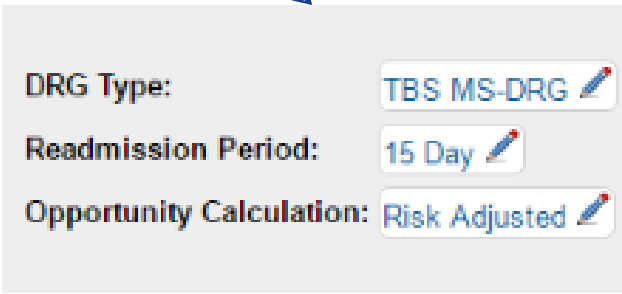
PEAK PPR Set-Up

- Parameter Options – Allows for user-specified setups and includes period, facilities, service lines, readmission period, opportunity calculation, and report type
- PPR Report Types – Contains the report data grouped by physician, specialty, physician group, service line, APR-DRG, Client MS-DRG, or TBS MS-DRG

Parameter Options







PPR Report Display

- Opportunity Calculation – shows how much the hospital could improve based off the parameter “*All Case*” or “*Risk-Adjusted*”

- All PPR details tables can be manipulated by using *filters*, *groupings*, and *exclusions*

“All Case” vs. “Risk-Adjusted” Opportunities

Variance	Index	Observed Readmissions	Charges of Readmissions	Costs of Readmissions	LOS of Readmissions	Critical Care Days of Readmissions
0.42	1.73	1	$76,108.73	$30,443.49	7.0	0.0

“All Case” Opportunities

Physician ID	Physician	Physician Specialty	Observed Chains	Expected Chains
124100	BAZZLE, TIFFANY	ANESTHESIOLOGY	1	0.58

“Risk-Adjusted” Opportunities

Variance	Index	Observed Readmissions	Charges of Readmissions	Costs of Readmissions	LOS of Readmissions	Critical Care Days of Readmissions
0.42	1.73	1	$32,147.74	$12,859.09	3.0	0.0

Differences in “All Case” and “Risk-Adjusted” Opportunities

Within the Physician’s Opportunity Measures:

1. Change in LOS Opportunity = 4 days
2. Change in Cost Opportunity = $17,584.40
3. Change in Charge Opportunity = $43,960.99
4. Change in Variance = 0

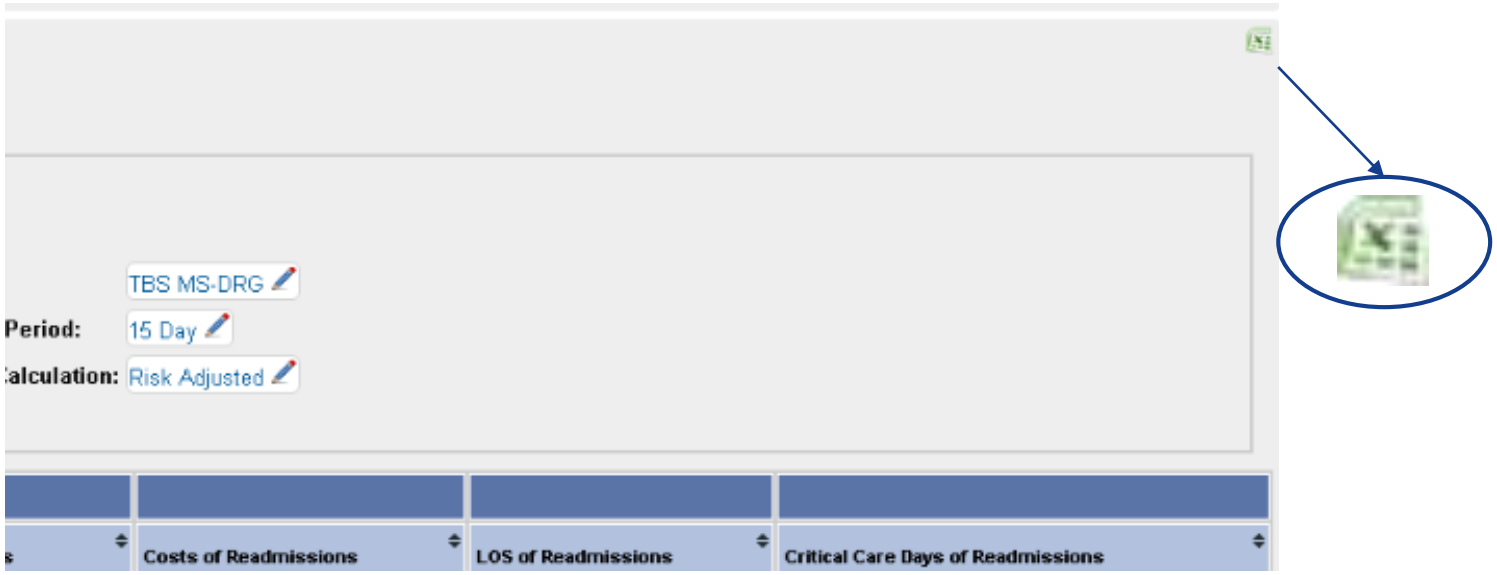
Changes are due to no adjustments for case mix

PPR Report Columns

- Expected Chains: expected number of chains based on the number of encounters determined to be at risk
- Observed Chains: number of chains observed
- Variance = observed chains - expected chains
- O/E= (observed chains)/(expected chains)

PPR Export

- Click the Excel icon in the top right corner of the report table to export data to a new workbook



Demonstration

- Let’s dive into the PEAK system!

Data Sources

1. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/HealthCareFinancingReview/downloads/08Fallpg75.pdf

PPC Analysis: Understanding Potentially Preventable Complications

PPC Session Objectives

After this presentation, participants should be able to describe:

- What are PPCs?
- Why PPCs?
- Available PPC Parameters
- Using PPCs in Scorecards
- Running and Reading a Complication Analysis

PPC Agenda

1. When complications qualify as “potentially preventable”
2. Advantages of PPCs over other methods
3. Setting up, running, and exporting PPC data
4. PEAK demonstration

PPC Definitions

- ***PPC*** – **P**otentially **P**reventable **C**omplication
- ***PPC Logic***:
  - *Present on Admission* (POA) Indicators are key
  - Frequency of PPCs increase with reason for admission and severity of illness (SOI)
- ***PSI*** – Patient Safety Indicators
- ***CSP*** – Complications Screening Program
- ***HAC*** – Hospital Acquired Conditions

PPC Advantages

- Only care process complications are included
- "Preventability" based on:
  - POA indicators
  - secondary diagnosis codes
  - procedure codes
- When initially created:
  - PPCs included *94%* of the diagnosis codes and *all* of the procedure codes used in PSI and CSP
  - Also added an *additional 524 diagnosis codes* not present in either PSI or CSP

PPC Differentiators

- PPCs can be applied to a larger group of patients than other methods
- PPCs use POA indicators extensively, and a 2006 study published in Health Care Financing Review [1] found that about 84.1% of PPCs are eliminated due to POA indicators
- Previous methods mostly characterize post-operative complications, *PPCs characterize more*

PPC Value

- PPCs measures can be used to assess:
  - Outcomes-Based Payments
  - Patient Safety Initiatives
- In general, PPCs undesirably affect:
  - Length of Stay (LOS)
  - Mortality Rates
  - Hospital Charges and Costs
- A 2009 study published in Health Care Financing [2] found that PPCs accounted for an *increase in total inpatient costs of 9.39%* in California, and *9.63%* in Maryland

PEAK PPC Grouping Methodology

- TBS uses the 3M Potentially Preventable Complications Grouping Software [3]
- The 3M grouper uses the following categories:

Category	# of PPC groups
Cardiovascular, respiratory complications	12
Gastrointestinal complications	4
Perioperative complications	8
Infectious complications	6
Malfunctions, infections from devices; reactions	9
Obstetrical complications	8
Extreme complications	6
Other medical and surgical complications	12

PEAK Complication Analysis Methodology

- Allows users to investigate *PSIs*, *PPCs*, and *HACs* more in-depth
- Opportunity for costs, charges, and LOS are calculated
- Benchmarks are calculated differently here than elsewhere in PEAK (explained next)
- Opportunities are calculated by *comparing the observed and expected incidence*

PPC Benchmark Calculations

- Calculation process:
  - Rate of complications is calculated for the peer group
  - The rate is the percentage of patients with the complication out of the “at risk” patients
  - “At risk” patients are in same PPC-adjusted APR-DRG/SOI groupings
  - PPC-adjusted APR-DRG is the APR-DRG that would have been without the complication(s)
  - “At risk” patients could have had the complication because of similar conditions

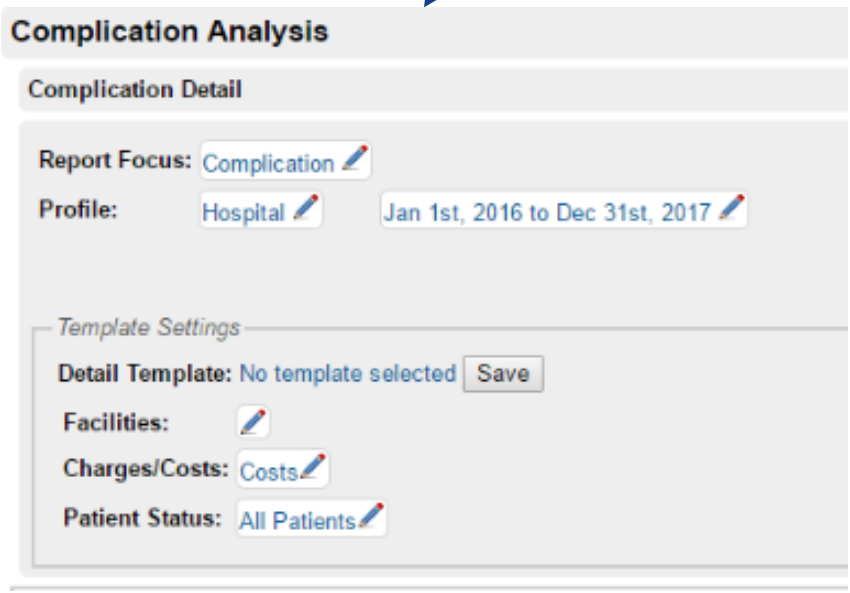
PPC Opportunity Calculations

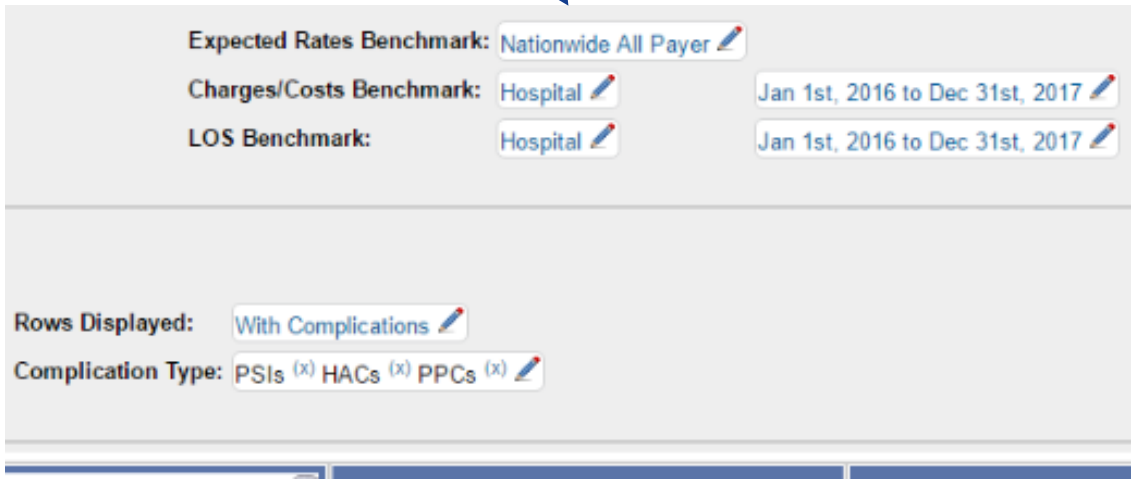
- Expected number of complications comes from multiplying number of "*at risk*" patients by the peer group benchmark rate
- Opportunity is difference in costs, charges, or LOS for group compared to if the benchmark had been matched

Example:

$$LOS\ Opp = (O_{comp} - E_{comp})(O_{LOS} - B_{LOS})$$

Configuring Parameters



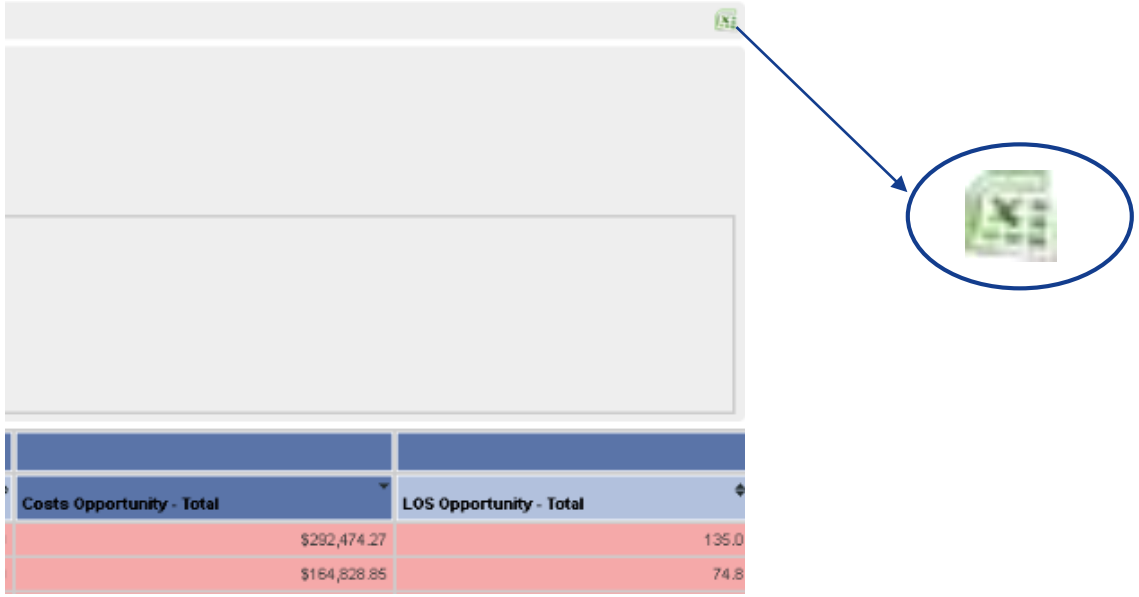


PPC Details Pages

- Complication Detail – shows all complications across the hospital
- Diagnosis Detail – lists information for a specific complication
- Patient Detail – shows each case of a complication at the patient level
- Physician Detail – shows cases listed by physician
- Specialty Detail – lists cases by physician specialty

PPC Export

- Click the Excel icon in the top right corner to export the data to a new Excel workbook (all changes must be applied before doing so)



Demonstration

- Let’s dive into the PEAK system!

Data Sources

1. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/HealthCareFinancingReview/downloads/06springpg63.pdf
2. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/HealthCareFinancingReview/downloads/09SummerPg17.pdf
3. http://multimedia.3m.com/mws/media/839142O/3m-ppc-grouping-software-fact-sheet.pdf

Questions?

10 S. Wacker, Suite 3375, Chicago, Illinois 60606-4720
www.syntellis.com
(847) 441-0022

Qualifications, Assumptions and Limiting Conditions (v.12.08.06):

This Report is not intended for general circulation or publication, nor is it to be used, reproduced, quoted or distributed for any purpose other than those that may be set forth herein without the prior written consent of Syntellis Performance Solutions, LLC.

All information, analysis and conclusions contained in this Report are provided “as-is/where-is” and “with all faults and defects”. Information furnished by others, upon which all or portions of this report are based, is believed to reliable but has not been verified by Syntellis Performance Solutions, LLC. No warranty is given as to the accuracy of such information. Public information and industry and statistical data, including without limitation, data are from sources Syntellis Performance Solutions, LLC deems to be reliable; however, neither Syntellis Performance Solutions, LLC nor any third party sourced make any representation or warranty to you, whether express or implied, or arising by trade usage, course of dealing, or otherwise. This disclaimer includes, without limitation, any implied warranties of merchantability or fitness for a particular purpose (whether in respect of the data or the accuracy, timeliness or completeness of any information or conclusions contained in or obtained from, through, or in connection with this report), any warranties of non-infringement or any implied indemnities.

The findings contained in this report may contain predictions based on current data and historical trends. Any such predictions are subject to inherent risks and uncertainties. In particular, actual results could be impacted by future events which cannot be predicted or controlled, including, without limitation, changes in business strategies, the development of future products and services, changes in market and industry conditions, the outcome of contingencies, changes in management, changes in law or regulations. Syntellis Performance Solutions, LLC accepts no responsibility for actual results or future events.

The opinions expressed in this report are valid only for the purpose stated herein and as of the date of this report.

All decisions in connection with the implementation or use of advice or recommendations contained in this report are the sole responsibility of the client.

In no event will Syntellis Performance Solutions, LLC or any third party sourced by Syntellis Performance Solutions, LLC be liable to you for damages of any type arising out of the delivery or use of this Report or any of the data contained herein, whether known or unknown, foreseeable or unforeseeable.