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Financial Outcomes by Severity Across Children's Hospitals

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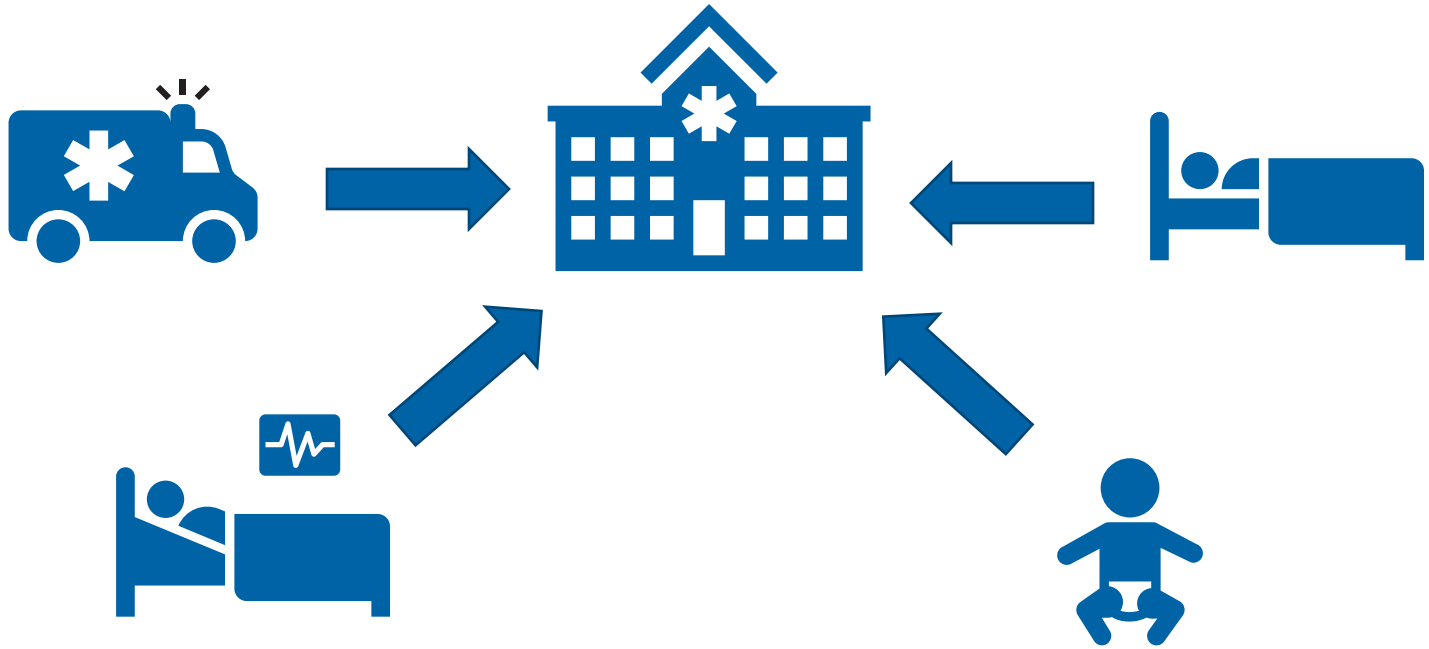
Disclosures

- We have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity

The Hospital Ecosystem

- The general pediatrics floor represents a significant portion of the hospital ecosystem.



General Pediatric Floor Hospitalizations

- Patients admitted to the general pediatrics floor have a wide variety of severity and resource utilization.

- Little is known about how well costs and reimbursements align within severity groupings or how financial outcomes compare across severity groups.

Study Objective

- Primary Objective
  - To compare financial outcomes of pediatric hospitalizations to the general pediatrics floor across patient severity quartiles.

- Secondary Objective
  - To examine financial outcomes stratified by payor type across severity quartiles.

H-Risk Severity

- Hospital Resource Intensity Score derived from All Patient Refined Diagnosis Related Groups (APR-DRG) and Severity of Illness (SOI).
  - H-Risk was created by formulating a pediatric specific relative weight for each APR-DRG and SOI classification.
  - This allows for comparison of the intensity of resource use across various APR-DRG groups.

Financial Terms

- Cost: The amount of money spent by a hospital on a hospitalization.

- Charge: The amount of money a hospital bills the primary payor for a hospitalization.

- Reimbursement: The amount of money a hospital is paid by the primary payor.

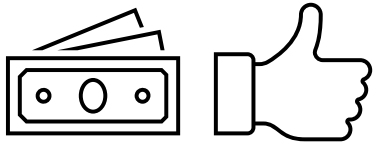
Study Design, Population, Setting

- Retrospective Cohort
- Pediatric Health Information System Database (PHIS)
- Revenue Management Program (RMP)
- Included children aged 0-18 years discharged during calendar year 2019.
- Excluded newborns, surgical and OB admissions, children requiring PICU or NICU care, and transfers in or out.

Methods

- Outcome Measures
  - Cost Coverage Ratio (CCR)
    - Reimbursement divided by estimated cost
    - A CCR <1.0 equals an estimated net financial loss
      - Cost > Reimbursement

    - A CCR >1.0 equals an estimated net financial gain
      - Reimbursement > Cost



Methods

- Four severity quartiles encompassing approximately 25% of the hospitalizations each.
- Compared demographic and clinical characteristics of patient severity quartiles.
- Determined CCR from cost and reimbursement data.
- A net median margin was calculated as median reimbursement minus median costs.

Results

- 163,656 hospitalizations
- 56% government payors
- Average length of stay of 2 days

Results

	Severity Quartile			
	1	2	3	4
Cost, Geo Mean	$4,700	$6,075	$8,139	$13,494
Reimbursement, Geo Mean	$4,727	$6,424	$8,795	$15,817
CCR	1.0	1.1	1.1	1.3

Results

	Non-Government Payor			
	Severity Quartile			
	1	2	3	4
Cost, Geo Mean	$4,776	$6,175	$8,097	$13,885
Reimbursement, Geo Mean	$7,320	$9,135	$12,303	$21,740
CCR	1.6	1.6	1.6	1.7

	Government Payor			
	Severity Quartile			
	1	2	3	4
Cost, Geo Mean	$4,634	$5,983	$8,167	$13,195
Reimbursement, Geo Mean	$3,230	$4,535	$7,222	$12,290
CCR	0.7	0.7	0.7	0.8

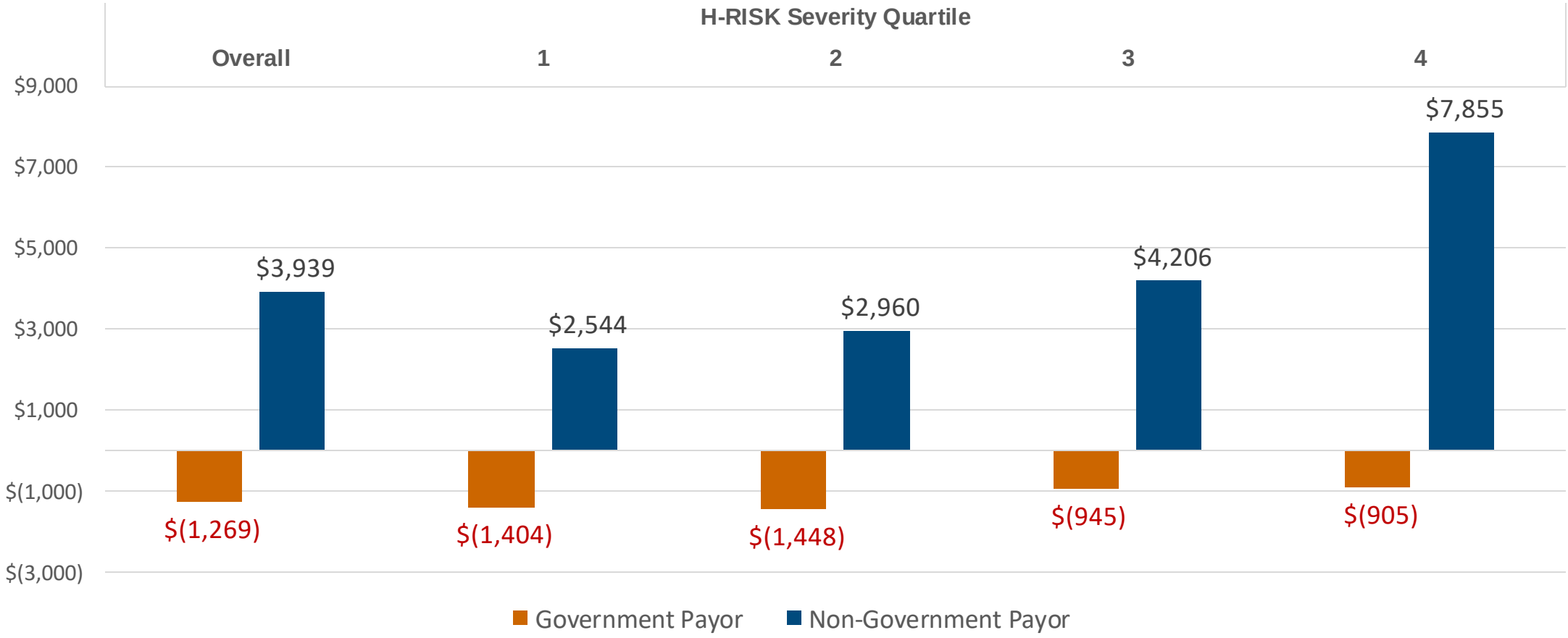
Individual Hospital CCR Heat Map

Payor Type		Government				Non-Government			
Severity Quartile		1	2	3	4	1	2	3	4
Hospital	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								

CCR	
	< 1
	1
	> 1

Results

Median Net Margin for Pediatric Medical Inpatient Admissions Overall and Across Severity Quartiles



Main Findings

- Combined reimbursements equaled or exceed costs across all severity quartiles.
- CCR increases as severity increases.
- There are large differences by payor type.
- Significant variability exists between individual hospitals.

Conclusion

By utilizing a cost coverage ratio, hospitals can highlight severity cohorts of patients admitted to the general floor where costs and reimbursements may be misaligned.

Limitations

- Cost is estimated
- Coding and billing practices vary
- Cannot account for specific contracts

Next Steps

- Future projects:
  - Examine the drivers of variation in costs and reimbursements
  - Examine variation in billing and coding practices between hospitals.

Thank You!

Please email with questions!

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Cost-To-Charge Ratio

- Estimated charges from the PHIS database using hospital and year specific cost-to-charge ratios from Centers for Medicare and Medicaid Services.

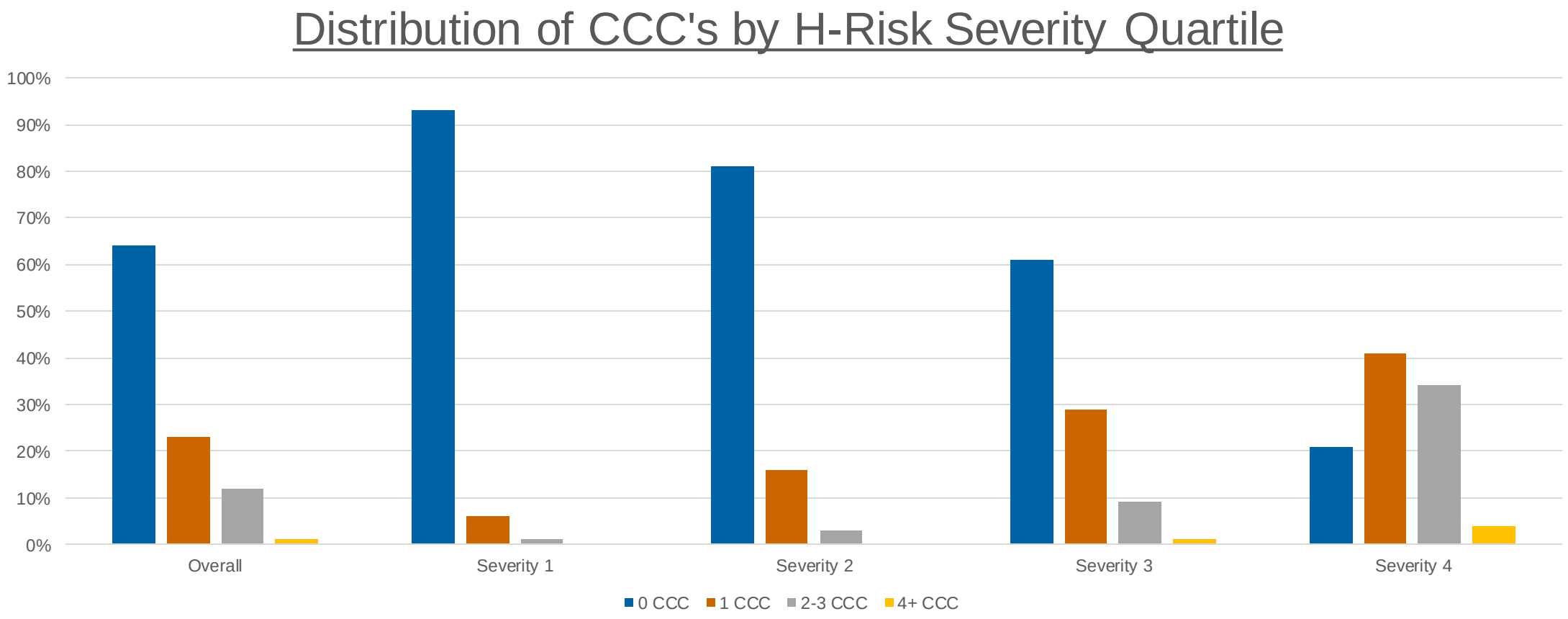
- Shwartz M, Young DW, Siegrist R. The ratio of costs to charges: how good a basis for estimating costs? *Inquiry*. 1995;32(4):476-481

H-Risk Relative Weight

- A Relative weight is calculated by dividing the average cost of patients within a group divided by the average cost of all patients in the reference population.

- Richardson T, Rodean J, Harris M, Berry J, Gay JC, Hall M. Development of Hospitalization Resource Intensity Scores for Kids (H-RISK) and Comparison across Pediatric Populations. *J Hosp Med*. Published online April 25, 2018. doi:10.12788/jhm.2948

Results


Distribution of CCC's by H-Risk Severity Quartile
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Overall
Severity 1
Severity 2
Severity 3
Severity 4
0 CCC
1 CCC
2-3 CCC
4+ CCC