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Financial Outcomes by Severity Across Children's Hospitals

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Financial Outcomes by Severity Across Children's Hospitals

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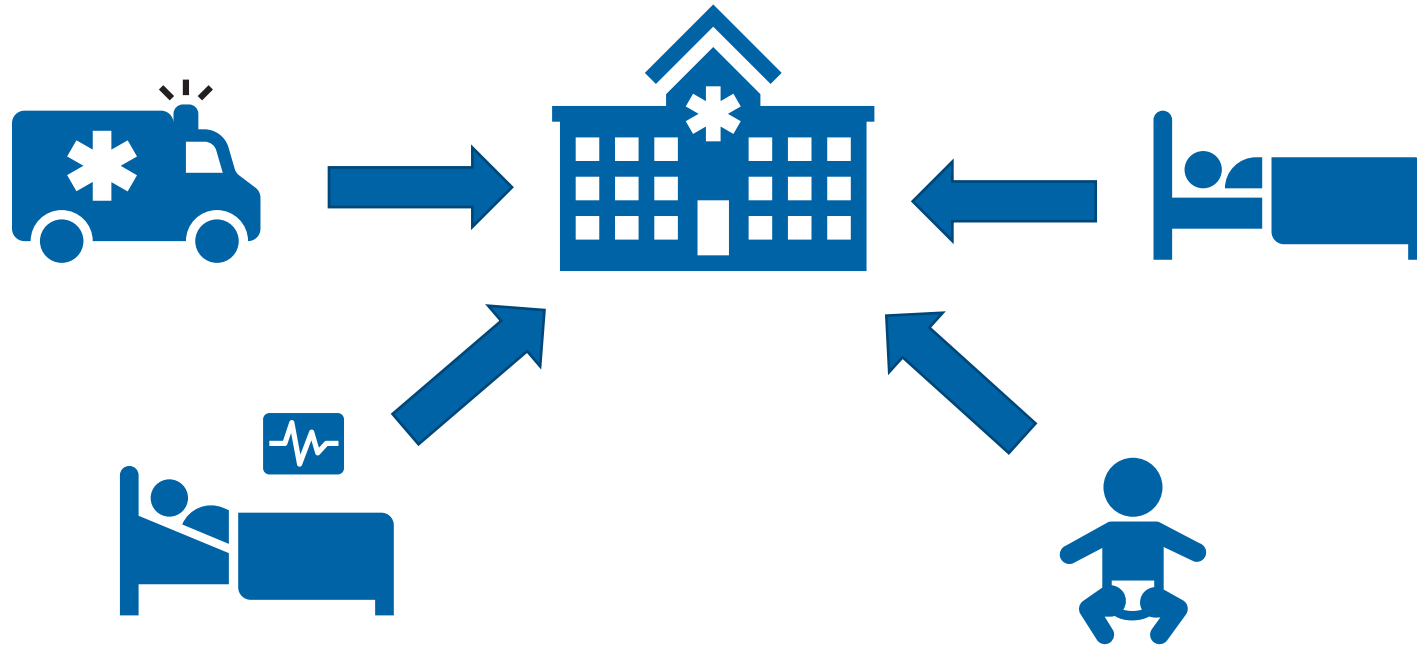


Disclosures

- 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

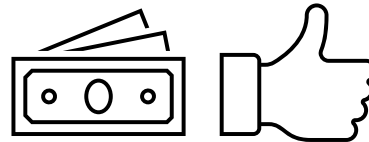
- A CCR < 1.0 equals an estimated net financial loss

- 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

	<u>Non-Government Payor</u>			
	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

	<u>Government Payor</u>			
	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

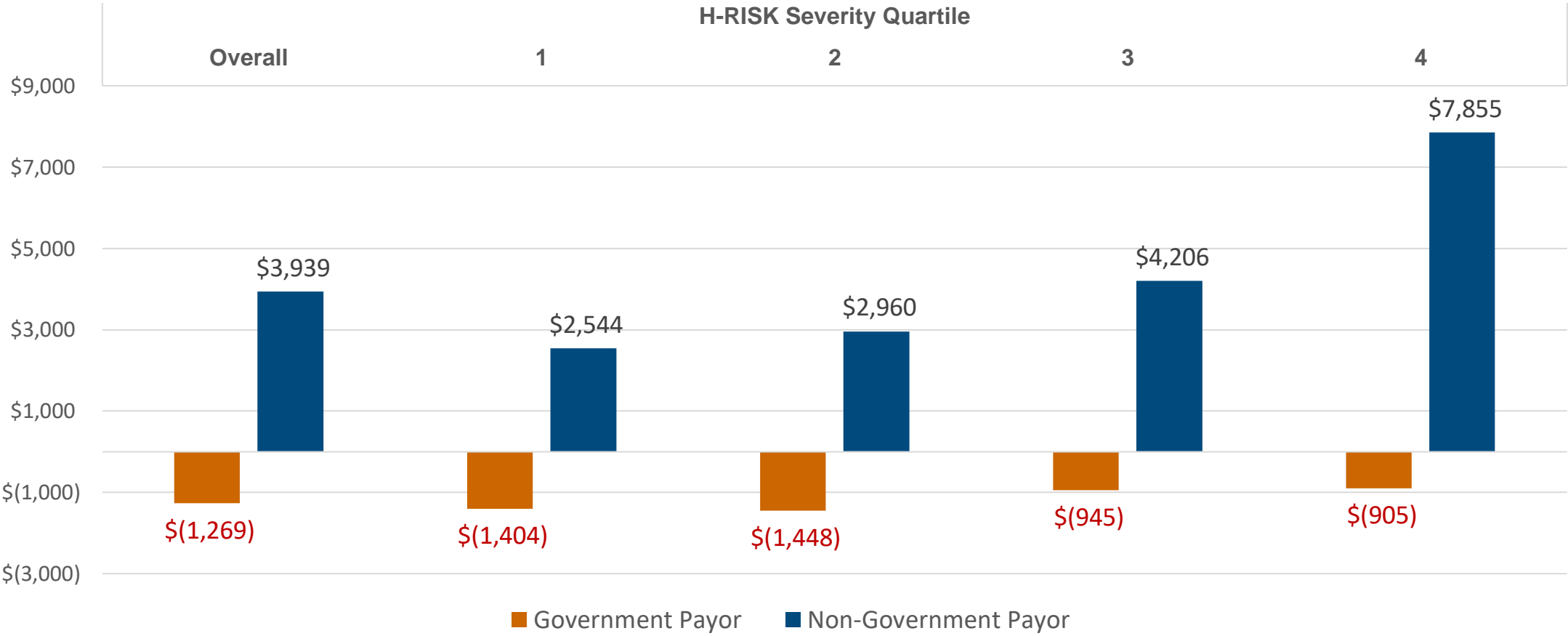
Individual Hospital CCR Heat Map

Payor Type		Government				Non-Government			
Severity Quartile		1	2	3	4	1	2	3	4
Hospital	1	Light Orange	Light Orange	Light Orange	Light Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	2	Orange	Orange	Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	3	Orange	Orange	Orange	Orange	Medium Blue	Medium Blue	Medium Blue	Medium Blue
	4	Light Orange	Light Orange	Light Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	5	Orange	Orange	Orange	Orange	Medium Blue	Medium Blue	Medium Blue	Medium Blue
	6	Light Orange	Light Orange	Light Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	7	Orange	Orange	Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	8	Orange	Orange	Orange	Orange	Medium Blue	Medium Blue	Medium Blue	Medium Blue
	9	Light Orange	Light Orange	Light Orange	Light Orange	Medium Blue	Medium Blue	Medium Blue	Medium Blue
	10	Light Orange	Light Orange	Light Orange	Light Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	11	Orange	Orange	Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	12	Brown	Brown	Medium Blue	Medium Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	13	Medium Blue	Medium Blue	Brown	Medium Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
	14	Orange	Orange	Orange	Orange	Dark Blue	Dark Blue	Dark Blue	Dark Blue

CCR	
Light Orange	≤ 1
Dark Blue	> 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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LOVE WILL.



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](https://doi.org/10.12788/jhm.2948)

Results

Distribution of CCC's by H-Risk Severity Quartile

