Change in Home Support is Associated with Prolonged Length of Hospital Stay in Children with Medical Complexity

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SDI

Change in medical

technology

ICU admission

Background

- Average length of stay (LOS) in children with medical complexity (CMC) is as high as 12.5 days, whereas average LOS is <2 days in children without medical complexity
- Hospitalization in CMC can result in escalation of care needs requiring changes in home support (new or change in long term care facility, primary caregiver, or home nursing)
- Obtaining home support resources to ensure safe discharge often takes time and may prolong LOS, however this relationship remains unknown

Objective



To evaluate the association between changes in home support and prolonged LOS in CMC.

Methods

<u>Design</u>: single-center retrospective case-control study Sample:

- Children 0-21 years old
- ≥2 chronic conditions by ICD-10 complex chronic conditions classification
- Discharged from hospital medicine between 2016-2022
- Exclusion criteria: foster care, died during hospitalization, required neonatal intensive care

<u>Cases</u>: individuals with prolonged LOS, defined as 90th-97.5th percentile of LOS (14.08-40.96 days)

<u>Controls</u>: individuals with shorter LOS, defined as 25th-75th percentile of LOS (1.86-6.91 days)

Matching: age, number of complex chronic conditions (CCC), admission timing

Primary exposure: change in home support (new or change in long term care facility, primary caregiver, or home nursing)

<u>Covariates</u>: Intensive Care Unit (ICU) admission, change in medical technology, neighborhood socioeconomic deprivation index (SDI)

Analysis: multivariable logistic regression



| OS | Controls: Shorter LOS N = 133 (64.5%) | P-value |
|---------|--|---------|
| | | 0.66 |
| 19 (32) | 43 (28) | |
| 21 (26) | 34 (31) | |
| 27 (42) | 56 (40) | |
| 29 (43) | 72 (54) | 0.19 |
| | | 0.50 |
| 49 (73) | 106 (80) | |
| 14 (21) | 17 (13) | |
| 4 (6.0) | 10 (7.0) | |
| | | 0.30 |
| 22 (33) | 50 (38) | |
| 16 (24) | 40 (30) | |
| 19 (43) | 43 (32) | |
| 0.33 | 0.32 | 0.60 |
| 19 (28) | 13 (10) | 0.001 |
| 37 (55) | 21 (16) | <0.001 |





Conclusions

- neighborhood SDI

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Percentage of Individuals with Changes in Home Support by Length of Stay



Prolonged LOS

Children with change in home support had 10.9 times the odds of prolonged LOS compared to those without change in home support (p=0.049)

Change in home support is associated with prolonged LOS among CMC when accounting for age, complexity, admission year, ICU, change in medical technology, and

Change in home support may increase healthcare costs, place additional financial and social stress on families, and increase exposure to iatrogenic illness If the findings hold true on completion of full analysis, they suggest need to optimize processes surrounding acquisition of home support resources for CMC